THE UNIVERSITY
of EDINBURGH

This thesis has been submitted in fulfilment of the requirements for a postgraduate degree (e. g. PhD, MPhil, DClinPsychol) at the University of Edinburgh. Please note the following terms and conditions of use:

- This work is protected by copyright and other intellectual property rights, which are retained by the thesis author, unless otherwise stated.
- A copy can be downloaded for personal non-commercial research or study, without prior permission or charge.
- This thesis cannot be reproduced or quoted extensively from without first obtaining permission in writing from the author.
- The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the author.
- When referring to this work, full bibliographic details including the author, title, awarding institution and date of the thesis must be given.

“The best of the Antients and Moderns:” Robert Sibbald, Natural History, Medicine and Collecting in Scotland (c.1650-1710)

René Winkler

The University of Edinburgh

Doctor of Philosophy (History)

2024

ABSTRACT

This thesis examines thought and practices surrounding the discipline of natural history in late seventeenth- and early eighteenth-century Scotland and focuses in particular on the ideas and conduct of the most prominent Scottish naturalist during that time, the physician and geographer Sir Robert Sibbald (1641–1722), prioritising his Latin works and his relationship to collecting specimens of natural history. The thesis is in two parts, one looking at Sibbald's intellectual sources, and the other at his relationship with collecting and museums as emerging practices in natural history. These two parts show a rich and varied picture of the state of natural history in Scotland before the eighteenth-century Scottish Enlightenment, in which Sibbald was not the only voice - though perhaps the most important one.

The first part of the thesis highlights how continental medical humanism and neo-Stoic ideas shaped Sibbald's work and reveals more clearly than has been hitherto appreciated, his syncretic approach to medicine which emphasised the examination of the particulars of nature and sought to bridge the divide between ancient and modern learning. Chapter I provides a historiographical overview of Robert Sibbald and emphasises how natural history has been a neglected facet of seventeenth-century intellectual life. In Chapter II, the foundation of Sibbald's continental medical education will be examined to show how his training in Leiden and Paris led him to embrace an "old-new" method of practising medicine that prioritised natural history and merged Galenic-Hippocratic with modern observations of natural particulars. Chapter III explores more fully the ethical and natural philosophical concepts underpinning Sibbald's ideas and argues that influences from neo-Stoicism were essential to the description of Scottish nature in his *Scotia Illustrata* (1684). Ideas concerning the relationship between the microcosm of the human body and the macrocosm of the universe, as well as the possibility of Scottish medical and dietary self-sufficiency, had profound implications for Sibbald's picture of Scotland, although particularly the latter were challenged by economic realities and rival medical theories. Chapter IV examines these challenges in detail and highlights the role of natural history in the dispute between Sibbald and his colleague Archibald Pitcairne (1652–1713), which brought into the open intellectual fault lines and challenges to Sibbald's vision of natural history. Sibbald's impassioned, but

selective, defence of his work was fought with weapons of humanist rhetoric seeking to guard natural history as a discipline against those who questioned its fundamental premises.

The second part of the thesis expands to natural history in Scotland more broadly. It centres on the practices of collecting specimens of natural history and the background to the first teaching collections at a Scottish university, the collection described in Sibbald's *Auctarium Musaei Balfouriani* (1697). Chapter V considers two earlier collectors of natural history in Scotland, the brothers James (c. 1600–1657) and Andrew Balfour (1630–1694), who, through their collecting activities, provided role models for Sibbald's practices of natural history collecting. Sibbald's assumption of a collecting identity and his didactic aspirations for the collection, as described in the *Auctarium* catalogue, will be the subject of Chapter VI, which will also deal with the institutional challenges of the university collections in the first decade of their existence. One of the keepers of that collection, James Paterson (c.1680–1705), became engaged in the Scottish network of fossil collectors that surrounded the Glasgow-based librarian Robert Wodrow (1679–1734), which will be the subject of Chapter VII. While this network was not centred on Robert Sibbald, it provides the best-documented case study of a Scottish network of naturalists and reveals an engagement with the fossil debates as well as an independent dynamic shaped by institutional and infrastructural realities.

LAY ABSTRACT

This thesis examines the thought and practices concerning nature by the physician Robert Sibbald (1641–1722), who was one of the most important figures in the Scottish early modern history of science, partly due to his role in the founding of institutions such as the Royal College of Physicians of Edinburgh (est. 1681) and the Royal Botanic Garden (est. c.1670). It argues that natural history was at the heart of Sibbald's intellectual endeavours, particularly in his medical ideas. Using previously under-researched documents, often in Latin, this thesis shows that he was as much a product of a traditional continental scholarship as he was someone who sought to improve the country. This is emphasised by a focus on two aspects of his work: a commitment to the moral and scientific tradition that came from the ancient Greek philosophy of Stoicism, as well as a recognition that museums - relatively new institutions - could help investigate and teach about nature. The thesis has a strong focus on Sibbald, but it also considers other Scots who acquired specimens of plants, animals, rocks, minerals and fossils, by going out in search of them and by exchanging them in a network of correspondence. One such network was centred around the Glasgow librarian and church historian Robert Wodrow and on the museum at the later University of Edinburgh.

ACKNOWLEDGEMENTS

This thesis has been made possible by the generous and unwavering support of my supervisors Dr Richard Oosterhoff and Prof Thomas Ahnert, who have not only encouraged me to think with a broad historical horizon but have given me the knowledge, kindness, expertise and enthusiasm without which this thesis would not have been possible.

I have been privileged to share my ideas in person with a community of scholars, including Prof Monica Azzolini, Dr Simon Buck, Prof Julian Goodare, Dr Alasdair Raffe, Dr Lee Raye, Dr Michael Riordan and Prof Charles Withers, as well as Dr Rachel Walcott of the National Museum of Scotland. Departmental research groups for Scottish History, Material and Visual Culture, Intellectual History and others have allowed me to share my ideas in an open and supportive discussion, and my peers in the Edinburgh Latin therapy group have provided an enjoyable and informative space to improve my understanding of the language.

The best scholarship thrives in a sociable community of peers and my thanks go to my fellow PhD students, particularly Lewis Ashman, Carmen Channing and Emily Kent, who have shared the same path.

The staff of the archives and libraries at the National Library of Scotland, the Special Collections of the University of Edinburgh Library, the Edinburgh City Archives, the Archives of the Royal College of Physicians of Edinburgh, the National Records of Scotland and the Archives of the libraries of Glasgow Strathclyde University and the University of Glasgow have ensured that archival days were always pleasurable and productive. Part of the research for this thesis has been conducted during the Covid crisis and the work of people who create and maintain online resources such as the *Early Modern Letters Online* project has allowed research to continue during this time.

Letztlich möchte ich auch meinen Eltern danken für ihre großzügige und langjährige Unterstützung, ohne die diese Doktorarbeit nicht zustande gekommen wäre.

TABLE OF CONTENTS

Abstract 2

Lay Abstract 4

Acknowledgements 5

Part 1 8

Chapter I – Introduction 8

1.1 Robert Sibbald in the historiography 11

1.2 Thesis overview and argument 17

Chapter II – Medicine and Natural History: Robert Sibbald's Early Education and Influences 21

2.1 Sibbald's early intellectual influences and training in Edinburgh and on the Continent 22

2.2 Joining the "Antient Method to the Moderne" – Andrew Balfour, Martin Lister and the primacy of natural history 34

Chapter III – Stoic Natural History, Robert Leighton, the *Scotia Illustrata* and Scotland's Αὐτάρκεια 43

3.1 Stoicism and Robert Leighton 44

3.2 The *Scotia Illustrata* (1684) and natural history as a Stoic imperative 53

3.3 Seneca's Physics in the *Scotia Illustrata* and after 62

3.4 The consequences of natural history - on the Αὐτάρκεια of Scotland 73

Chapter IV Natural History under Attack: Archibald Pitcairne and Sibbald's *Vindiciae Scotiae Illustratae* 88

4.1 Archibald Pitcairne, the fever dispute and its historiography 89

4.2 "Laws" of Natural History 95

4.3 Defending Natural History: the *Vindiciae Scotiae Illustratae* 99

Part 2 - Collecting 115

Chapter V – Two Seventeenth-century Scottish Collectors: James and Andrew Balfour 121

5.1 James Balfour (c. 1600-1657) and precious stones 122

5.2 Andrew Balfour (1630-1694) 129

Chapter VI – The Museum Balfourianum and the *Auctarium Musaei Balfouriani* (1697) 139

6.1 The problem of institutionalisation: Balfour's collection 139

6.2 The *Auctarium Musaei Balfouriani* 147

Chapter VII – A Scottish Collecting Network: Robert Wodrow, James Paterson and Fossil Collecting 162
7.1 Keepers: James Paterson and Robert Wodrow 164
7.2 Edward Lhuyd in Scotland 170
7.3 Lithoscoping in Scotland 176
7.4 Dissolution 190
Conclusion 197
Bibliography 206

PART 1

Chapter I – Introduction

The Scottish intellectual landscape during the time between the Restoration of Charles II and the eighteenth-century Enlightenment defies easy characterisation, which is reflected in the difficulty of attributing a label to the period. Descriptors like the "Early Scottish Enlightenment" and "First Scottish Enlightenment" attempt to recognise that there was something distinctive about the various activities of Scots who sought to institutionalise, reform, and observe the natural and human environment of the historic and geographic entity whose political identity was profoundly transformed by the Act of Union of 1707.[1] However, despite the recent work that has gone into showing the richness of the intellectual climate of Scotland of that era, there remains an inherent teleological element in a periodization that emphasises the Scottish Enlightenment as an end-point.[2]

Historical studies in the history of knowledge which consider geographical, antiquarian and religious developments of late seventeenth- and early eighteenth-century Scotland have helped to counter notions of Scotland as a "by-word for irredeemable poverty, social backwardness;" instead they present a nuanced picture of an intellectually diverse society that was attuned not only to English, but also wider European developments.[3] In the history of science and intellectual history, valuable contributions have been made by studies that focus on institutions such as universities, the development of medicine, as well as natural

---

[1] Kelsey Jackson Williams, who uses both terms, discusses the problem of periodisation and warns of seeing the period as a "prelude" of the later period: *The First Scottish Enlightenment* (Oxford: Oxford University Press, 2020), 1-9. Dmitri Levitin has suggested abandoning the term "Early Enlightenment" altogether for the history of seventeenth-century philosophy, because it "obscures more than it reveals about seventeenth-century scholarship;" see Dmitri Levitin, *Ancient Wisdom in the Age of the New Science: Histories of Philosophy in England, c. 1640–1700* (Cambridge: Cambridge University Press, 2015), 8.

[2] This teleology has been particularly strong among scholars of the Scottish Enlightenment such as Hugh-Trevor Roper and Nicholas Phillipson. Colin Kidd, "The Phillipsonian Enlightenment," *Modern Intellectual History* 11, no. 1 (2014): 175–90.

[3] The rejection to this thesis put forward by Hugh-Trevor Roper in 1967 can be found in, Andrew S. Skinner, "Introduction," in *The Origins and Nature of the Scottish Enlightenment*, ed. R.H. Campbell and Andrew S. Skinner (Edinburgh: Birlinn, 1982), 17. Important recent studies include, Williams, *The First Scottish Enlightenment*, Charles W. J. Withers, *Geography, Science, and National Identity: Scotland since 1520* (Cambridge: Cambridge University Press, 2001), chapter 3, 69-111, Alasdair Raffe, *Scotland in Revolution, 1685-1690* (Edinburgh: Edinburgh University Press, 2018) and Thomas Ahnert and Martha McGill, "Scotland and the European Republic of Letters around 1700," in *Scottish Philosophy in the Seventeenth Century*, ed. Alexander Broadie (Oxford: Oxford University Press, 2020), 73–93.

and moral philosophy.[4] However, among these contributions, there has been no coherent study of a domain of seventeenth-century Scottish thought and practice that concerns one of the most dynamic areas of engagement with the physical world, that of natural history.[5] By the middle of the eighteenth century, practical enquiries into nature became emblematic of the later Scottish Enlightenment through people like the chemists William Cullen (1710–1790) and Joseph Black (1728–1799), or the Regius Professor of natural history and keeper of the museum at Edinburgh University, John Walker (1731–1803).[6] While these later figures drew inspiration from their seventeenth-century predecessors, there exist important continuities and discontinuities between them and earlier Scottish practitioners of natural history, who may be described as naturalists.[7] Identifying what these earlier Scottish naturalists thought and did will therefore enrich our understanding of the Scottish pre-Enlightenment landscape, and help us understand its distinctive character.

To provide such a study, this thesis centres on the most prominent of early Scottish naturalists, the physician, antiquarian and geographer (Sir) Robert Sibbald (1641–1722). Sibbald occupied a central place among the intellectual elites of Scotland and many of his contemporaries in Scotland and abroad acknowledged his wide-ranging natural and antiquarian knowledge.[8] This reputation was founded particularly on his *Scotia Illustrata*

[4] Roger L. Emerson, *Academic Patronage in the Scottish Enlightenment: Glasgow, Edinburgh and St Andrews Universities* (Edinburgh: Edinburgh University Press, 2008). Alexander Broadie, ed., *Scottish Philosophy in the Seventeenth Century* (Oxford University Press, 2020). Paul Wood, "Science in the Scottish Enlightenment," in *The Cambridge Companion to the Scottish Enlightenment*, ed. Alexander Broadie and Craig Smith, 2nd ed. (Cambridge University Press, 2019), 90–112. Raffe, Alasdair. "Intellectual Change before the Enlightenment: Scotland, the Netherlands and the Reception of Cartesian Thought, 1650–1700." *The Scottish Historical Review* 94, no. 1 (2015): 24–47. See also the influential PhD thesis by Christine M. Shepherd, "Philosophy and Science in the Arts Curriculum of the Scottish Universities in the 17th Century" (Edinburgh, University of Edinburgh, 1975).

[5] On natural history as a discipline which emerged from Renaissance humanism, see Brian W. Ogilvie, *The Science of Describing: Natural History in Renaissance Europe* (Chicago: University of Chicago Press, 2006).

[6] Matthew Eddy, *The Language of Mineralogy: John Walker, Chemistry and the Edinburgh Medical School, 1750-1800*, Science, Technology, and Culture, 1700-1945 (Farnham: Ashgate Pub. Co, 2008). Charles W. J. Withers and Paul Wood, eds., *Science and Medicine in the Scottish Enlightenment* (East Linton: Tuckwell Press, 2002); Elizabeth Yale, *Sociable Knowledge: Natural History and the Nation in Early Modern Britain* (Philadelphia: University of Pennsylvania Press, 2016).

[7] The term has gained influence particularly through its early use by David Elliston Allen, *The Naturalist in Britain: A Social History* (London: A. Lane, 1976).

[8] The German collector of collections, Michael Bernhard Valentini (1657-1729), praised "oft-lauded *Sibbaldius*, who best experienced and described everything in Scotland," in his *Museum Museorum* (Frankfurt: Johann David Zunner, 1704), 466. Linnaeus gave the genus name *Sibbaldia* to an alpine plant. The blue whale (*Balaenoptera musculus*) used to be commonly known as "Sibbald's rorqual."

(1684), the most comprehensive survey of Scottish natural history for over a century. Sibbald's prolific output included several other works of natural history, including his *Phalainologia Nova* (1692), as well as other Latin and English works on natural historical, chorographical, medical and antiquarian subjects.[9] Furthermore, Sibbald was intimately involved in founding institutions that were concerned with natural knowledge, which endure to this day, foremost among them the Royal College of Physicians of Edinburgh and the Physic Garden of the city, which later became the Royal Botanic Garden.[10]

Sibbald's natural history existed in a complex framework of thought that aimed to merge ancient medical theories and moral and natural philosophies with what he saw as a modern emphasis on the natural historical practices of observation and improvement. What emerges from this study is that, for Sibbald, engagement with nature was not only the foundation for medical knowledge and practice, but it was also the ethical basis for conduct in life. Sibbald saw himself carefully balancing tradition with innovation, and he eschewed "the shortest way" to over-arching hypotheses.[11] This attitude was shaped by his continental humanist medical training and by those colleagues he admired because, like him, they prioritised knowledge of nature, such as the English physician Martin Lister (1639–1712). For Sibbald, natural history was a discipline which preserved past knowledge but also embraced contemporary empirical and didactic virtues. This bridging of old and new was encapsulated in his didactic approach to natural history, which he described to the Royal Society member Hans Sloane in 1707 as using the "best of the Antients and Moderns."[12]

---

[9] Charles Withers has provided a list of Sibbald's publications in Charles W.J. Withers, "Sir Robert Sibbald (1641-1722)," in *Geographers' Biobibliographical Studies*, vol. 17 (London: Mansell, 1997), 12–21.

[10] The library and archives of the Royal College of Physicians of Edinburgh are the Sibbald Library. In 2017, the name "Sibbald Walk" was given to the plaza of a new residential and commercial development in central Edinburgh, "Sibbald Walk From the Gazetteer for Scotland," the Editors of the Gazetteer for Scotland, 2022, https://www.scottish-places.info/features/featurefirst94222.html (accessed, 1 July 2024).

[11] Robert Sibbald to Hans Sloane, 26 Feb 1707, EUL MS Dc 8.35, f. 49.

[12] *ibid*.

1.1 Robert Sibbald in the historiography

A thesis which deals with the intellectual background of a seventeenth-century naturalist and with the practice of collecting requires engagement with scholarships of diverse fields. Since the second part of the thesis deals with museums and collecting, that historiography will be presented there, with other historiographical discussions placed in the relevant chapters. Here, the following overview will consider historians' engagement with Robert Sibbald's medical, geographical and antiquarian interests, and will consider these in turn.

The main subject of this thesis, Robert Sibbald, has primarily interested scholars working within the three fields of the history of medicine, geography and antiquarianism. This variety of biographical angles of an early modern *virtuoso* is unsurprising, considering the polymathic nature of early modern actors of knowledge in general and the various institutional roles Sibbald took on during his lifetime.[13] The large volume of his output and his role in the founding of institutions meant that his activities and writings have received interest from Scottish antiquarians since at least the nineteenth century.[14]

Medical historians have mostly been interested in Sibbald as the emblematic co-founder figure of the Royal College of Physicians of Edinburgh (formally established in 1681).[15] However, since formal medical teaching at Edinburgh did not commence until the establishment of the Edinburgh Medical School several years after his death, one historian in the early 1980s could still describe Sibbald as a "neglected scholar," which also reflects neglect of the seventeenth century by Enlightenment scholars.[16] The medical historian Andrew Cunningham, writing about Sibbald's medical ideas, rightly emphasises his syncretic

---

[13] The Italian loanword *virtuoso* had come in English usage to mean a "learned or ingenious person, one that is well qualified," in Thomas Blount's definition of 1656. Richard Yeo, *Notebooks, English Virtuosi, and Early Modern Science* (Chicago: University of Chicago Press, 2014), 7.

[14] Alexander Mitchell, ed., *Geographical Collections Relating to Scotland Made by Walter Macfarlane*, vol. 3 (Edinburgh: Edinburgh University Press for the Scottish History Society, 1908); the manuscript of Sibbald's *Memoirs* as transcribed by Boswell was first published in James Maidment, *Analecta Scotica: Collections Illustrative of the Civil, Ecclesiastical, and Literary History of Scotland. Chiefly from Original Mss* (Thomas G. Stevenson: Edinburgh 1834), 126-159.

[15] For Sibbald's fundamental role in the founding of the college, as well as his initiatives in establishing a library, see particularly, William Stuart Craig, *History of the Royal College of Physicians of Edinburgh* (Oxford: Blackwell Scientific Publications, 1976), 61-69, 119.

[16] Allen D. C. Simpson, "Sir Robert Sibbald - The Founder of the College," in *Proceedings of the Royal College of Physicians of Edinburgh - Tercentenary Congress* (Cambridge: Cambridge University Press, 1982), 59.

approach of "old-new" medicine, but ultimately judges him to be a "loyal Hippocratic," who resorted to ancient medical knowledge because it was the "conservative thing to do."[17] However, in the seventeenth century, Hippocratic medicine was an exceedingly elastic term, and Hippocrates became a label which was attributed to such diverse figures as Thomas Sydenham, Giorgio Baglivi and Herman Boerhaave, who have at some points been called the English, Italian and Dutch Hippocrates respectively.[18] Cunningham also identifies the crucial role that Sibbald played during the college's so-called "fever-dispute" of the 1690s, during which these ideas were challenged by mathematical practitioners of medicine, but in other accounts of this dispute, Sibbald emerges only as a marginal figure, the intellectual and particularly rhetorical fights being carried out by others.[19]

More attention has been paid to Sibbald's institutional foundations than to his medical ideas. These included not only the physicians' college but also, with his colleague Andrew Balfour, the Edinburgh Physic garden, established in 1670.[20] In Hugh Ouston's influential assessment of the patronage of James, Duke of York and future king James VII and II, Sibbald emerges as a key Royalist figure who manages to leverage James' patronage to advance his career, culminating in his knighthood and his appointment as geographer royal for Scotland in 1681.[21] Following the revolution of 1688, these patronage opportunities had dried up – not least because of Sibbald's temporary, if unpopular, conversion to Catholicism in 1685.[22]

Building on Ouston's account, Roger Emerson has assessed later attempts by Sibbald to

---

[17] Andrew Cunningham, "Sir Robert Sibbald and Medical Education, Edinburgh 1706," *Clio Medica* 13 (1978), 136, 138.

[18] Ian Maclean "The Reception of Hippocrates by Physicians at the End of the Seventeenth Century," in Dmitri Levitin and Ian Maclean (ed.) *The Worlds of Knowledge and the Classical Tradition in the Early Modern Age: Comparative Approaches*, (Brill: Leiden, 2021), 217-274. See also Evan R. Ragland, *Making Physicians - Tradition, Teaching, and Trials at Leiden University, 1575-1639, Volume 1* (Leiden: Brill, 2022), 241-2

[19] Cunningham, "Sir Robert Sibbald, kt.," 137. For the historiography of that debate, see Section 4.1.

[20] For Sibbald's role in the establishment of the Physic Garden, see Harold R Fletcher and William H Brown, *The Royal Botanic Garden Edinburgh 1670-1970* (Edinburgh: Her Majesty's Stationery Office, 1970), 3-10, and John Macqueen Cowan, "The History of the Royal Botanic Garden, Edinburgh," *Notes from the Royal Botanic Garden, Edinburgh* 41 (1933): 1–62.

[21] Hugh Ouston, "York in Edinburgh: James VII and the Patronage of Learning in Scotland, 1679–1688," in *New Perspectives on the Politics and Culture of Early Modern Scotland*, ed. John Dwyer, Roger Mason, and Alexander Murdoch (Edinburgh: Donald, 1982), 133–55. Ouston's thesis which developed these ideas, was not available at the time of writing: Hugh Ouston, "Royalist Virtuosi: James VII and the Patronage of Learning in Scotland 1679-1689" (DPhil., University of Oxford, 2020).

[22] Alasdair Raffe has judged "the famous intellectual's rejection of Catholicism, in spite of the personal advantages that his conversion might have brought, was a seminal event," Alasdair Raffe, *Scotland in Revolution, 1685-1690* (Edinburgh: Edinburgh University Press, 2018), 59.

establish a Royal Society for Scotland in the period preceding the Act of Union in 1707.[23] While Emerson judges that, ultimately, such a project would have lacked the requisite leadership and communication infrastructure to be successful, he emphasises the cosmopolitanism of Sibbald and his associates, who "lived in a European[,] not a British or Scottish world."[24] Sibbald, in Emerson's account, was part of a group of *virtuosi* who, around 1700 sought to remake "a society so that it could produce men able to compete in every way in a rapidly changing world."[25] Elsewhere, Emerson notes that "any account of the Scottish Enlightenment which ignores him or which writes off the *virtuosi* as merely the last remnants of a Latin humanist culture," misconceives the origin of Enlightenment thought.[26] In contrast to the Hippocratic conservative image that is painted by medical historians, Sibbald appears as a moderniser, and as part of a group of Scottish "Baconians for whom a rather naïve empiricism and a more complex critical method in historiography seemed to promise great improvements."[27] Emerson's assessment of Sibbald's Baconian notions has been influential, and Matthew Walker judges Sibbald among "the more Baconian of late seventeenth-century natural philosophers."[28] This modernising account of Sibbald and other Scottish *virtuosi* also serves to counter the notion, put forward by John Clive and Bernard Bailyn in 1954, that the Scottish Enlightenment emerged in an "English cultural province," in which geographical distance from London, a presumed impoverished aristocracy and cultural isolation engendered a feeling of inferiority and an uncreative provincialism.[29] Emerson, by contrast, emphasises that Sibbald and contemporaries like Robert Wodrow worked in a European intellectual landscape which engaged with ideas like Baconianism and Newtonian physics, and which questioned an account of English metropolitan centres and

---

[23] Roger L. Emerson, "Sir Robert Sibbald, Kt, The Royal Society of Scotland and the Origins of the Scottish Enlightenment," *Annals of Science* 45, no. 1 (1988): 41–72.
[24] Emerson, "Sir Robert Sibbald, Kt," 60.
[25] Roger Emerson, "The World in Which the Scottish Enlightenment Took Shape," in *Scottish Philosophy in the Eighteenth Century, Volume I*, ed. Aaron Garrett and James A. Harris (Oxford: University Press, 2015), 21, 27-31.
[26] Roger L. Emerson, "Science and the Origins and Concerns of the Scottish Enlightenment," *History of Science; Cambridge* 26, no. 4 (1988): 339.
[27] Emerson, "Sir Robert Sibbald, kt," 64.
[28] Matthew Walker, "Architecture, Improvement and the 'New Science' in Early Modern Scotland," *Architectural Heritage* 23, no. 1 (November 2012): 44.
[29] Roger L. Emerson, "Did the Scottish Enlightenment Emerge in an English Cultural Province?," *Lumen: Selected Proceedings from the Canadian Society for Eighteenth-Century Studies* 14 (1995): 1–24. John Clive and Bernard Bailyn, "England's Cultural Provinces: Scotland and America," *The William and Mary Quarterly* 11, no. 2 (1954): 200–213.

provincial Scottish thought.[30] Paul Wood has likewise seen in the engagement of Sibbald and other Scottish *virtuosi* in medicine, antiquarianism, natural history and the physical sciences forerunners of an "ideology of scientism," and an embodiment of a "Baconian map of learning," that came to a fuller exposition during the mid-eighteenth century Enlightenment.[31]

This forward-looking image has been taken up by other scholars, particularly Charles Withers, who has focused on Sibbald's geographical and chorographical work.[32] While arguing that we should be cautious of mapping our understanding of disciplinary distinctions in natural knowledge pertaining to geography, natural history and medicine, Withers suggests that Sibbald's work "prefigured disciplinary connections in the eighteenth century and Enlightenment notions of natural knowledge as useful social practice."[33] In Withers's assessment of Sibbald, he emerges as a "geographical modern" who made judicious use of credible informants and textual authorities to place local chorographical knowledge in a global geographical context.[34] He also emerges as a "historical modern" who asked questions about Scottish identity using geographic material as well as historical and antiquarian sources.[35] Building on scholarship that emphasises the social contingencies underpinning early modern claims of credibility and truth, Withers stresses the importance of Sibbald's correspondence network through which he collected information for his geographical project.[36] Sibbald, in this account, was at the hub of a "personal centre of calculation," that gathered information from sources which, through their social status, were deemed by him as reliable.[37] However, he also contrasts Sibbald's "sedentary

---

[30] Emerson, "Did the Scottish Enlightenment Emerge in an English Cultural Province?" 1–24.

[31] Paul Wood, "The Scientific Revolution in Scotland," in *The Scientific Revolution in National Context*, ed. Mikulas Teich and Roy Porter (Cambridge: Cambridge University Press, 1992), 278.

[32] Withers, *Geography, Science, and National Identity*, 69; Charles W. J. Withers, "Sibbald, Sir Robert (1641–1722), Physician and Geographer," in *The Oxford Dictionary of National Biography* [Online] (2004). See also Withers, "Geography, Science and National Identity in Early Modern Britain: The Case of Scotland and the Work of Sir Robert Sibbald (1641–1722)," *Annals of Science* 53, no. 1 (1996): 29-73 and Withers "Sir Robert Sibbald (1641-1722)," *Geographers' Biobibliographical Studies*, 17 (1997): 12-21.

[33] Withers, "Geography, Science and National Identity," 51, 63.

[34] Withers, *Geography, Science and National Identity*, 75.

[35] Withers, *Geography, Science and National Identity*, 75-6.

[36] A list of Sibbald's correspondents c. 1683 to c.1700 can be found in Withers, *Geography, Science, and National Identity*, Appendix, 256-62, Emerson provides a list of "Selected resident Scottish virtuosi of 1700," in "Sir Robert Sibbald, kt," 70-2. Steven Shapin, *A Social History of Truth* (Chicago: The University of Chicago Press, 1994).

[37] Withers, *Geography, Science, and National Identity*, 77-8.

empiricism" with the itinerant and mobile mode of geographical enquiry that supported the work of Sibbald's sometime collaborator John Adair.[38] Like Emerson, Withers emphasises the usefulness of knowledge and Sibbald's query-based method of gathering information, and he follows Emerson's assessment that his natural knowledge was Baconian, although he sees this as competing with other forms of knowledge, such as Newtonianism.[39] The use of Baconianism by Emerson and Withers serves to emphasise Sibbald's apparent commitment to making natural knowledge useful to society, and highlights Sibbald's method of collecting empirical information via queries in the same way as was done by members of the Royal Society of London.[40] This information gathering was mostly textual, however, and, according to Withers, Sibbald was no "field-based geographer," and he "did not actively engage in direct observation."[41]

Kelsey Jackson Williams has placed Sibbald's chorography and his antiquarianism, which included his county histories of Fife and Stirling, in the context of a scholarly movement that sought to establish the civil history of Scotland during the late seventeenth and early eighteenth centuries.[42] As Withers does for his geographical work, Williams emphasises that Sibbald's account of Scottish history was based mainly on textual scholarship, using classical histories and medieval charters, and occasionally supplemented by personal knowledge or informants.[43] Importantly, Williams shows that Sibbald's genealogical and archaeological work, which culminated in "chaotic case studies," came under criticism not long after his death, by scholars who saw his humanistic mode of scholarship as outdated and inaccurate.[44]

---

[38] Charles W. J. Withers, "Geography and the Scientific Revolution," in *Geography and Revolution*, ed. David N. Livingstone and Charles W. J. Withers (University of Chicago Press, 2005), 86-7.
[39] Withers, *Geography, Science, and National Identity*, 77-84; and Withers, "Geography and the Scientific Revolution," 86.
[40] On the Royal Society's Baconian programme, see Daniel Garber, "Fact, Fiction and Error in Bacon and the Royal Society," *Rivista Di Storia Della Filosofia (1984-)* 71, no. 4 (2016): 563-78. Vera Keller has rightly warned of over-emphasing the programmatic aspect of seventeenth-century followers of Bacon: Vera Keller, "Deprogramming Baconianism: The Meaning of Desiderata in the Eighteenth Century," *Notes and Records: The Royal Society Journal of the History of Science* 72, no. 2 (2018): 119-37 and Vera Keller, *The Interlopers* (Baltimore: Johns Hopkins University Press, 2023), 249-56. On the particular type of fact that was seen as crucial to Royal Society members, see Lorraine Daston, "Baconian Facts, Academic Civility, and the Prehistory of Objectivity," in *Rethinking Objectivity* (Durham: Duke University Press Books, 1994), 37-63.
[41] Withers, *Geography, Science, and National Identity*, 80,
[42] Williams, *First Scottish Enlightenment*.
[43] Williams, *First Scottish Enlightenment*, 209, 145.
[44] Williams, *First Scottish Enlightenment*, 146, 150.

From this historiography, a somewhat contradictory picture of Sibbald emerges. On the one hand, Sibbald was a conservative physician, loyal to Hippocratic theories and adhering to a humanist scholarship that prioritised textual accounts over direct observation, which was quickly becoming out-of-date. On the other hand, he was a Baconian improver, establishing forward-looking institutions and collecting information in ways that mirrored English practices. This thesis seeks to reconcile these assessments by prioritising the aspect of Sibbald's work which, while it has usually been considered part of his medical of geographical scholarship, was the one he valued the most as the basis for moral conduct and knowledge about the workings of the world: natural history.

Sibbald's engagement with natural particulars has usually been considered from the angle of medicine or geography. The medical historian Allan Simpson describes Sibbald's extra-institutional activities in the 1690s, which includes most of his naturalist work, as "fairly esoteric."[45] Apart from one recent scholar who has translated parts of the *Scotia Illustrata*, Sibbald's natural history has only received scant attention. [46] Sibbald's engagement with nature came at a time when the disciplinary boundaries of natural history were being established, in England as well as the continent.[47] By Sibbald's time natural history had become somewhat detached from its anthropocentric Renaissance origins.[48] As a growing scholarship on natural history has shown, the systematic understanding of natural objects was bound to a multiplicity of cultural, geographic, economic and social contingencies.[49] And while there are very few scholarly studies that focus mainly on the role of nature in

---

[45] Simpson, "Sir Robert Sibbald - The Founder of the College," 74.

[46] This translation is part of a larger project which shows the range of early modern biodiversity. Lee Raye, "Robert Sibbald's 'Scotia Illustrata' (1684): A Faunal Baseline for Britain," *Notes and Records: The Royal Society Journal of the History of Science* 72, no. 3 (2018): 383–405. The translations are in Lee Raye, *The Wild Plants of Scotland and the Animals of Scotland by Robert Sibbald* (Lee Raye, 2020), and the project atlas is Lee Raye, *The Atlas of Early Modern Wildlife* (Exeter: Pelagic Publishing, 2023).

[47] On Bacon's role in attempting to reform natural history into a discipline, see Paula Findlen, "Francis Bacon and the Reform of Natural History in the Seventeenth Century," in *History and the Disciplines - The Reclassification of Knowledge in Early Modern Europe*, ed. Donald R. Kelley (Rochester: The University of Rochester Press, 1997).

[48] Ogilvie, *Science of Describing*, 269-71.

[49] Allen, *The Naturalist in Britain: A Social History* (London: A. Lane, 1976); Paula Findlen, *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy* (Berkeley: University of California Press, 1994); Harold J. Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven: Yale University Press, 2007); Dániel Margócsy, *Commercial Visions: Science, Trade, and Visual Culture in the Dutch Golden Age* (Chicago: The University of Chicago Press, 2014); Nicholas Jardine, James A. Secord, and E. C. Spary, eds., *Cultures of Natural History* (Cambridge: Cambridge University Press, 1996) and the follow-up volume Helen Anne Curry et al., eds., *Worlds of Natural History* (Cambridge: Cambridge University Press, 2018).

Sibbald's writings, the work on English physician-naturalists has been more attuned to natural history.[50] Prioritising natural history does mean looking at different sources. By contrast with his improvement tracts, and his county chorographies, Sibbald wrote almost everything which concerned natural history in Latin.[51] Although Sibbald's period saw a gradual shift to scientific communication in the vernacular, the field of natural history remained enamoured with Latin well into the nineteenth century and beyond.[52] Sibbald himself embodied this shift and while he had planned for the second part of the *Prodromus* to be printed "both in Latin and in our English," his advertisement of a course in natural history and medicine in 1706 made it a requirement that attendants needed to be knowledgeable in Latin and Greek, and he wished this to be "certified by the signatures of their teachers."[53] Much of Sibbald's Latin corpus, including large parts of the *Scotia Illustrata*, as well as his *Phalainologia nova* (1692), the majority of the *Auctarium* (1697) catalogue, as well as his *Miscellanea eruditæ antiquitatis* and his *Vindiciae Scotiae Illustratae* (both 1710), are not available in translation. This means they are somewhat less accessible to modern scholars than his correspondence, his *Memoirs* and his manuscript texts dealing with improvement.[54]

1.2 Thesis overview and argument

This thesis attempts to reconstruct Sibbald's thoughts on natural history in a larger natural philosophical context and also consider his engagement with museums and collecting, the most evident practical form of knowledge-making. It will use both Latin and English sources

---

[50] Among the English physician-naturalists, the most important recent monographs include Anna Marie Roos, *Web of Nature: Martin Lister (1639-1712), the First Arachnologist* (Leiden: Brill, 2011) and James Delbourgo, *Collecting the World: Hans Sloane and the Origins of the British Museum* (Cambridge, MA: Harvard University Press, 2017).

[51] On the primacy of Latin in early modern science, see Martin Korenjak, *Latin Scientific Literature, 1450-1850* (Oxford: Oxford University Press, 2023), 36-8.

[52] Even in the late twentieth-century, a Czech botanical journal was able to publish a study on needle grasses entirely in Latin: O. J. Martinovský and B. Maraldo, "Studia Taxonomica Ad Taxa Sectionis Stipa in Regione Mediterranea Atque Submediterranea Occurrentia," *Preslia* 52 (1980): 13-34.

[53] Robert Sibbald to Hans Sloane, 2 Nov 1708, EUL MS Dc 8.35 f. 53. Cunningham, "Sir Robert Sibbald and Medical Education," 135.

[54] Robert Sibbald, *The Memoirs of Sir Robert Sibbald (1641-1722)*, ed. Francis Hett Paget (London: Oxford University Press, 1932). Sibbald's "Overture… for erecting the Royal Society of Scotland for improving of Usefull Arts," has been explored in Emerson, "Sir Robert Sibbald, kt," 67-9.

and prioritise, as Sibbald did, natural history over medical and antiquarian concerns. It is true that seventeenth-century disciplinary boundaries were porous and, for instance, methodologies for antiquarian research were seen as equally valid for enquiries into nature. However, in Sibbald's writings, particularly the *Vindiciae*, he established a primacy of natural history based on Stoic ideas and methodological pedigree which set it apart from the more partisan civil history or medicine with its mutable practices. Focusing on natural history will allow us to deal with the contradiction that emerges from the historiography and to query to what extent the notions of Sibbald as a Baconian improver and a textual scholar are justified. The first part of the thesis will form an intellectual biography of Sibbald as a naturalist-physician. Chapter II follows Sibbald's undergraduate studies at Edinburgh and his continental medical education at Leiden and Paris, and also emphasises his commitment to ancient and modern methodologies in medicine as represented by his role model, Martin Lister. Chapter III turns to Sibbald's vision of a humanist natural history which was based in part on Stoic moral and natural philosophy, and was most clearly presented in his main work, the *Scotia Illustrata* (1684). Here, natural history emerges as a moral imperative, and medical and Stoic ideas on the physical workings of the world lead to the conclusion that Scotland possessed medical and dietary self-sufficiency (αὐτάρκεια). Improvement of the natural environment not the emphasis in the 1680s, but threats to the notion of alimentary autarky by famines in the 1690s, led to Sibbald's more decided turn towards notions of improvement. Further challenges to Sibbald's ideas are the subject of Chapter IV, which deals with two neglected Latin tracts, the *Dissertatio de Legibus Historiae Naturalis* (1696), and Sibbald's response in the *Vindiciae Scotiae Illustratae* (1710), which allow us to put into sharper focus the values which underpinned Sibbald's thinking. The mathematical physician Archibald Pitcairne (1652–1712) emerges as the main intellectual antagonist for whom not only Sibbald's practices but also his methodology was flawed.

The second part of the thesis turns to the practical engagement with nature and to the collecting, ordering, display, and exchange of plants, animals and underground productions in Scotland. It also moves beyond the narrow focus on Sibbald and considers other Scottish naturalists, such as Sibbald's physician colleague (Sir) Andrew Balfour (1630–1694), the church historian Robert Wodrow (1679–1734) and the museum keeper James Paterson (c.1680–1705). All of these engaged with natural knowledge in an attempt to understand a divinely created world and to improve medicine, their careers, and the country they lived in.

Part 2 of this thesis introduces these actors in case studies that concern the three most important elements of natural history collecting: collectors, institutions and networks.

Chapter V shows how early collectors like Andrew Balfour and his brother James used natural history collecting to fashion the persona of the cosmopolitan, learned *virtuoso*, and also shows Sibbald's role in this fashioning process. Chapter VI deals with museums as institutions and considers not only the challenges of transforming a personal collection like Andrew Balfour's into an institutional asset, but also explores Sibbald's vision of what an institutionalised didactic collection might be, as exemplified in his *Auctarium Musaei Balfouriani* (1697). This chapter also shows that Sibbald was by no means an entirely textual scholar and that he was actively engaged in collecting objects of natural history that he deemed didactically or epistemically useful. The final chapter of this thesis consists of a case study of a Scottish collecting network centred around Robert Wodrow and James Paterson which was concerned primarily with fossils. While Sibbald played only a secondary role in this network, appearing mainly through his patronage of Paterson, Wodrow's fossil network shows the social, infrastructural and theoretical basis for Scottish history collecting, as well as the fragility of collecting networks.

Since many of Sibbald's ideas were founded in ancient medical and philosophical knowledge, and since he considered collecting and museums a thoroughly modern practice, the first part of the thesis might be considered as dealing with the "Antient," whereas the second part emphasises the "Modern." However, in both thought and practice, Sibbald saw himself operating in an intellectual continuum between classical ideas and virtues, Renaissance practice and thought, and late seventeenth-century epistemic methodologies. Sibbald's "humanist Latinity" informed his ideas on nature and medicine, and while it sat alongside methods and institutions which would endure into the later Enlightenment, Sibbald's commitment to a Renaissance tradition of scholarship ran deep.[55] This thesis also seeks to highlight the challenges that Sibbald's mode of natural history was subject to, particularly around the turn of the eighteenth century. Like any historical figure, Sibbald's ideas were shaped by educational, institutional, geographical, social and religious contingencies that directed his intellectual and pedagogical commitment to particular theories or philosophies. Some of these ideas appear idiosyncratic and contradictory, while

[55] Emerson, "Science and the Origins and Concerns of the Scottish Enlightenment," 339.

others changed or were silently dropped once they were subjected to challenges from others. Sibbald sometimes painted himself as a lone voice in his home country, a Scottish outpost of an international community of naturalists. By the end of his career, Sibbald had to contend with competing visions for medicine which de-emphasised the primacy of natural history and instead sought to place medicine on a more mathematical footing.

An analysis of Sibbald's writing and activities allows us to reconstruct the possibilities of Scottish natural history in the seventeenth century. These possibilities were defined by trends in Scottish and continental natural philosophies and medical practices, and the exploitation of these possibilities was driven by a concern for realising the economic and intellectual potential of a nation in the process of defining its historic and geographic form despite its uncertain political future. What has hitherto been less understood is how underlying all of this was a distinctive natural philosophical training which shaped Sibbald's engagement in natural history and ultimately led to the publication of the *Auctarium* and his participation in a culture of collecting and museums. As vague as his commitment to any particular seventeenth-century philosophy was, Sibbald's work had a strong moral and improving thrust that drew as much from medical humanism and Stoic natural philosophy as it did from Baconian influences. This multiplicity requires an approach that engages more closely with his Latin writings and looks at Sibbald's relationship with collecting natural history. Beyond simple utilitarian motives, Sibbald saw natural history as a way of contemplating divine creation, and the consequences of this moral imperative derived from particularly Stoic influences, as will be set out below. His activities as a physician and naturalist were intimately linked with each other and he accepted some forms of knowledge-making, like empirical methods, while rejecting others, such as mathematical methods. By reconstructing the intellectual and philosophical foundations of Sibbald's thinking, his later engagement in the acquisition of specimens of minerals, rocks, fossils, plants and animals becomes more easily understood. But Sibbald was neither an unalloyed improver nor was he an enthusiastic collector. Rather he embodied a bridge between Renaissance humanist knowledge and the Scottish Enlightenment.

Chapter II – Medicine and Natural History: Robert Sibbald's Early Education and Influences

For Robert Sibbald, competence in natural history and medicine was established via training from competent teachers, and he considered his own biography proof of this point.[1] When, in 1710, he defended himself against detractors who questioned his competence in natural history, Sibbald stated that he would readily subject himself to the judgement of his peers, who should decide between them and him.[2] As evidence, he submitted in his *Vindiciae Scotiae Illustratae* details about his education at Edinburgh and his training in medicine on the continent.[3] In his unpublished autobiography, Sibbald carefully listed the names of his teachers, both well-known men like Franciscus Sylvius (Francois de la Boë, 1614–1672) and Guy Patin (1601–72), and more obscure figures like the unidentifiable "Witichius," and Bazalis.[4] Sibbald saw his medical and naturalist persona as the result of contact with these people, as well as the values and practices that they imparted. While James Boswell's judgement of Sibbald's autobiography as "the most natural and candid account of himself that ever was given by any man," is perhaps overstating the amount of detail Sibbald gave about his medical education, Sibbald's emphasis on his education means we know more about his training than about most other seventeenth-century Scottish physicians, with the possible exception of Andrew Balfour.[5]

Using Sibbald's account, this chapter will follow Sibbald's medical training more closely than has been done by previous biographers and will show both the diversity of competing theories and medical ideas that Sibbald was exposed to in Edinburgh, Leiden and Paris, as

---

[1] The most thorough biography of Sibbald has been drawn up by Charles Withers in "Sir Robert Sibbald (1641-1722)," in *Geographers' Biobibliographical Studies*, 82–91, and in Charles Withers, "Sibbald, Sir Robert (1641–1722), physician and geographer," *Oxford Dictionary of National Biography* [Online], 2004.

[2] "Sed etsi insimulari quivis innocens potest, revinci nisi nocens non potest. Eruditos ergo quoscunque, praeserim vero historiae naturalis peritos appello, ut in hac lite inter me et Prodromastiges judicium secundum aequum et bonum ferant," Robert Sibbald*, Vindiciae Scotiae Illustratae, sive Prodromi Naturalis Historiae Scotiae, contra Prodromomastiges, sub larvâ libelli de legibus historiae naturalis, latentes* (Edinburgh: Andrew Symson, 1710), 5. For this important episode, see Chapter IV.

[3] Sibbald, *Vindiciae*, 11.

[4] This is available to us from the transcript of a now-lost manuscript, and the printed version of 1932 has been the basis of most of Sibbald's biographical accounts. Sibbald wrote the manuscript in 1695, well into middle age, and included events up to 1692. The manuscript copy is NLS Adv. MS 33.5.1. The printed version is Robert Sibbald, *The Memoirs of Sir Robert Sibbald (1641-1722)*, ed. Francis Hett Paget (London: Oxford University Press, 1932), which will be used in this thesis.

[5] Quoted in Hett, Introduction in Sibbald, *Memoirs*, 1. See also page 33.

well as the role of practical teaching in anatomy, chemistry and natural history in Sibbald's education. Sibbald's emphasis on ancient and modern methods, which were the direct result of this education, and which he saw embodied in his English role model Martin Lister, will emerge not as a retreat to conservatism, but as a defence of continental medical humanism which was improved by modern observational practices.

2.1 Sibbald's early intellectual influences and training in Edinburgh and on the Continent

Robert Sibbald was born on 15 April 1641, to David Sibbald of Rankeillour, keeper of the great seal and member of a Fifeshire ancestral family.[6] His mother was Margaret Boyd of Kipps, a country estate near Linlithgow which Sibbald, after some legal wrangling, later inherited.[7] Robert Sibbald was the nephew of George Sibbald, an Edinburgh physician who had been trained at Padua and had attempted to establish a college of physicians in the city.[8] He studied Latin under a schoolmaster at Cupar in Fife and later attended the Royal High School in Edinburgh. This was followed by undergraduate study in the Scottish regenting system at the town college (the later university) from 1653, which included instruction in languages, mathematics, dialectic, ethics, metaphysics and physics.[9] Although a regent normally took a class through the entirety of an undergraduate degree, several of Sibbald's regents died during his studies and he graduated under the philosophy professor William Tweedy (d.1665) in 1659.[10] Sibbald's teachers at the town college included, apart from Tweedy, the mathematics professor Thomas Craufurd (d.1662), who gave lectures in mathematics twice a week and also lectured on scholastic metaphysics.[11] At Edinburgh, Sibbald also had a brief stint of postgraduate theology studies under the principal Robert Leighton, whose influence on Sibbald will be discussed in the following chapter. There is no

---

[6] Unless indicated otherwise, all dates in this thesis are Julian "new style," with the year considered to begin on 1 January, which had been Scottish practice since 1600 and contrasted with the English custom of commencing the year on 25 March. On the Rankeillour family, see John Burke and Bernard Burke, *A Genealogical and Heraldic History of the Extinct and Dormant Baronetcies of England, Ireland and Scotland*, 2nd ed. (London: J. R. Smith, 1844), 636.

[7] Sibbald, *Memoirs*, 70.

[8] Arthur Johnston, *Musa Latina Aberdonensis*, ed. William Duguid Geddes, vol. II (Aberdeen: New Spalding Club, 1895), 246. On George Sibbald's attempt of establishing the college, see NLS Adv MS 15.2.3.

[9] Sibbald, *Memoirs*, 52-55; Sibbald, *Vindiciae*, 11.

[10] Sibbald, *Memoirs*, 53. On the regenting system, see Shepherd, "Philosophy and Science," 18-9.

[11] Shepherd, "Philosophy and Science," 19, 113-4.

detailed curriculum available for Edinburgh, but the evidence for other Scottish universities suggests an official adherence to Aristotelian cosmology.[12] Tweedy in particular emerges as the kind of scholastic Aristotelian that was until recently deemed typical of a deeply conservative natural historical education at Scottish universities and who, in a lecture given after Sibbald's departure could still describe the Copernican view of the world as absurd, maintaining that the earth was at the centre of the universe and unmovable.[13] Sibbald noted, however, that Tweedy's conservatism was deemed out of touch by his students and wrote that Tweedy "gave us a paraphrase upon Aristotle his text, which gave many a disgust of him."[14] Recent historical scholarship has furthermore challenged the traditional image of Scottish universities as the bastion of an unadulterated and dogmatic scholastic Aristotelianism and has recognised that seventeenth-century Scottish undergraduate study offered exposure to a wider range of natural philosophical strands.[15]

Sibbald stressed this in his account of his education and stated that in addition to Aristotelian readings, students also had recourse to freer philosophy (*liberiori Philosophiae*) in their private readings, without leaving the country.[16] Sibbald's private study included works on atomism by two English Catholics: Kenelm Digby's treatise *On Body* (1644) and Thomas White's *De Mundo dialogi tres* (1642), which he stated it was "his fortune to meet wt."[17] These, he said, "he read with great delight, and [he] became a student of the Atomistick or crepuscular [i.e. corpuscular] philosophie. Aristotell his philosophie being then depraved by the scholastick writters."[18] Digby and White had aimed to rehabilitate Aristotelianism, which they believed could establish the certainty of physical causes which

---

[12] Shepherd, "Philosophy and Science," 35.
[13] Shepherd, "Philosophy and Science," 277.
[14] Sibbald, *Memoirs*, 54. Shepherd, "Philosophy and Science," 341-2.
[15] For the period before Sibbald, the work of Steven Reid and David McOmish has been particularly useful, including McOmish "A Community of Scholarship: Latin Literature and Scientific Discourse in Early-Modern Scotland" in Steven J. Reid and David McOmish, *Neo-Latin Literature and Literary Culture in Early Modern Scotland*, (Brill: Leiden, 2016), 40-73, David McOmish, "The Scientific Revolution in Scotland Revisited: New Sciences in Edinburgh," in *History of Universities*, vol. XXXII/2 (Oxford University Press, 2018), 153-72; and Steven J. Reid, "On the Edge of Reason: The Scottish Universities between Reformation and Enlightenment, 1560–1660," in *Scottish Philosophy in the Seventeenth Century*, ed. Alexander Broadie (Oxford: Oxford University Press, 2020), 33-49.
[16] "Nec solum Aristotelem legebant Alumni, sed & liberiori Philosophiae in privatis studiis operam dabant […] antequam in regiones externas abiret," Sibbald, *Vindiciae*, 11.
[17] Sibbald, *Memoirs*, 54.
[18] Sibbald, *Memoirs*, 54. Sibbald states that White's *De Mundo* followed Digby's hypothesis, but in fact it was the other way round.

included a moving earth.[19] Digby's treatise was a systematic exercise in mechanical philosophy and was aimed at strengthening the Catholic doctrine of the immortality of the soul, and White's three dialogues were the basis of much of Digby's thoughts. While the promotion of Catholic dogma via natural philosophy made Digby and White outsiders in Restoration England, their emphasis on a restored Aristotelianism combined with mechanical and corpuscularian philosophy shows the kind of syncretic approach which Sibbald found attractive in his later work. The aim was the reform of ancient knowledge, and not its replacement.[20] Other works of the new philosophy, which rejected Aristotelianism more decisively, and which Sibbald stated were read at Edinburgh included the works of Descartes and Gassendi.[21] Cartesianism was already a force in the Scottish intellectual landscape of the 1650s, although early engagement with Cartesianism at Scottish universities was often critical, mirroring a reception of Descartes in the Netherlands that saw problematic theological implications of Descartes' mechanical philosophy.[22] If Sibbald read Descartes during his undergraduate years, he did not become an immediate follower of mechanical philosophy, and there is little to suggest Sibbald's interest in Descartes until 1706.[23] Gassendi might have had a more profound influence on Sibbald, not just because he emphasised experiential knowledge, but also because Gassendi, like Sibbald, considered natural history as the most important part of natural philosophy.[24] Overall, Sibbald's account of this early education served to stress his familiarity with these alternatives to an Aristotelian physics, however, neither Descartes, nor Digby and White, featured much in Sibbald's work, although in the *Scotia Illustrata* there is a reference to Gassendi's work on meteors.[25]

---

[19] John Henry, "Sir Kenelm Digby, Recusant Philosopher," in *Insiders and Outsiders in Seventeenth-Century Philosophy* (New York: Routledge, 2010), 43-75.
[20] Notably, Scottish regents were attempting to reform scholastic philosophy, although their concern was with the relationship of metaphysics to Calvinist doctrine, Giovanni Gellera, "Reformed Scholastic Philosophy in the Seventeenth-Century Scottish Universities," in *Scottish Philosophy in the Seventeenth Century*, ed. Alexander Broadie (Oxford University Press, 2020), 94-110.
[21] Sibbald, *Vindicae*, 11.
[22] Alasdair Raffe, "Intellectual Change before the Enlightenment: Scotland, the Netherlands and the Reception of Cartesian Thought, 1650–1700," *The Scottish Historical Review* 94, no. 1 (2015), 45-6.
[23] On Sibbald's later approval of iatromechanic ideas, see Chapter IV.
[24] Dmitri Levitin, *The Kingdom of Darkness: Bayle, Newton, and the Emancipation of the European Mind from Philosophy* (Cambridge: Cambridge University Press, 2022), 99-100.
[25] Robert Sibbald, *Scotia illustrata sive, Prodromus historiae naturalis* (Edinburgh: James Kniblo, Josua van Solingen & James Colmar, 1684, *pars* 1, *lib*. 1, 27.

Sibbald's decision to pursue a medical career led him to travel to the continent, and between March 1660 and the summer of 1662, he went to study in the Low Countries and France, where the majority of his medical education and his training in natural history took place.[26] Sibbald noted that these three years abroad consisted both of public lectures by famous professors and private lectures (*collegia*), as well as practical experiences, and he stressed that he paid for his own education.[27] During his eighteen months in the Netherlands, Sibbald was able to draw on a well-established network of Scottish students that made Leiden an attractive Protestant place for medical education, with about half of those physicians who founded the Royal College of Physicians of Edinburgh in 1681 having studied there in the 1660s.[28] Sibbald also benefitted from the extramural industries of learning that had developed at Leiden by the 1660s, and it was perhaps this experience which prompted him to later offer a private course in medicine and natural history in Edinburgh in 1706.[29]

Sibbald enrolled at Leiden on 28 April 1660, a month after leaving Edinburgh.[30] As Evan Ragland has shown, Leiden's medical faculty had since its establishment in 1575 developed a medical culture which not only used and expanded Galenic theories of disease and faculties of the parts of the body but also pursued the three empirical areas of anatomy, clinical practice and chymistry.[31] These were taught in the city's institutional settings of the anatomy theatre, the hospital and the physic garden, didactic spaces that allowed for empirical observation and contributed to innovations in pathology through a sophisticated experimental culture.[32] Sibbald stated that he had attended the dissection of twenty-three or twenty-four bodies in the city's hospital and anatomical theatre over the space of eighteen months.[33] Leiden's anatomy theatre and hospital were, however, not only places

---

[26] On Scottish students at Dutch universities, see Esther Mijers, *"News from the Republick of Letters:" Scottish Students, Charles Mackie and the United Provinces, 1650-1750* (Leiden: Brill, 2012).
[27] Sibbald, *Vindiciae*, 10.
[28] Mijers, *"News from the Republick of Letters*," 43.
[29] Cunningham, "Sir Robert Sibbald and Medical Education," 135-61.
[30] Willem Nikilaas Du Rieu, *Album Studiosorum Academiae Lugduno Batavae MDLXXV-MDCCCLXXV* (Leiden: Martinus Nijhoff, 1875), 480.
[31] Ragland, *Making Physicians*, 25. The second volume, which will include the period of Sibbald's study, has not yet been available at the time of writing.
[32] Evan R. Ragland, "Experimental Clinical Medicine and Drug Action in Mid-Seventeenth-Century Leiden," *Bulletin of the History of Medicine* 91, no. 2 (2017): 331-61. Ragland, *Making Physicians*, 326-388.
[33] In Sibbald's *Memoirs*, 57 he mentions twenty-three, but in his *Vindiciae*, 10, he claimed twenty-four.

of practical demonstrations but were also spaces where contemporary medical debates were fought, which included concerns about Cartesian medicine and the use of iatrochemistry.[34]

Among Sibbald's teachers at Leiden was Johannes van Horne (1621–70) who taught anatomy and surgery, was in charge of the university's anatomical collections, and performed some of the dissections that Sibbald witnessed.[35] Another one of Sibbald's teachers was Franciscus Sylvius (Francois de la Boë, 1614–1672), who taught the *Institutiones* and medical practice, and who was particularly critical of Descartes's metaphysical medical theories, since these were not founded on observation. By the time Sibbald attended their dissections, Sylvius had used anatomy demonstrations to discredit some of Descartes' medical ideas, including the notion that the heart contracted by heat and light and not by muscular motion, for over twenty years.[36] While Sylvius did not reject all of Descartes' ideas outright and was particularly open to mechanistic explanations, he was opposed to Cartesian metaphysical speculation and favoured empirical observation that followed William Harvey. For Sylvius, Descartes was a competent mathematician and philosopher, but a poor anatomist, and he was keen to establish disciplinary lines between philosophy and medicine which excluded Descartes from place among the "legitimate Sons of Physicians."[37] Descartes' hubristic overreach consisted of nothing but "figments and Chimeras."[38] Sylvius used public anatomy demonstrations with the expressed purpose of discrediting Descartes' medical ideas, and although Sibbald does not explicitly state that he attended any of these, it is clear that the anatomical theatre at Leiden was not an ideologically neutral space.[39] Sibbald gained additional anatomical experience through his friendship with Sylvius' fellow student Nicolas Steno (Niels Stensen, 1638–86), another critic of Descartes' anatomy.[40] The details of this friendship are lacking, Steno performed private

---

[34] Evan R. Ragland, "Mechanism, the Senses, and Reason: Franciscus Sylvius and Leiden Debates Over Anatomical Knowledge After Harvey and Descartes," in *Early Modern Medicine and Natural Philosophy*, ed. Peter Distelzweig, Benjamin Goldberg, and Evan R. Ragland (Dordrecht: Springer Netherlands, 2016), 173-205; Evan Ragland, "Chymistry and Taste in the Seventeenth Century: Franciscus Dele Boë Sylvius as a Chymical Physician Between Galenism and Cartesianism*," *Ambix* 59, no. 1 (2012): 1-21. Levitin, *Kingdom*, 109

[35] Sibbald, *Memoirs*, 57. On van Horne, see T. Huisman, "The Finger of God: Anatomical Practice in 17th Century Leiden" (Leiden University, 2008), 70-87.

[36] Ragland, "Mechanism," 180.

[37] Ragland, "Mechanism," 198.

[38] Ragland, "Mechanism," 198.

[39] Ragland, "Mechanism," 191-2, 197.

[40] Sibbald, *Memoirs*, 57.

dissections in Sibbald's chambers where, as Sibbald noted Steno "showed me there, the ductus salivalis superior, he had discovered."[41] Steno, like his teacher Sylvius, used dissections to demonstrate what he perceived as Descartes' neglect of sensory observation, and to disprove Descartes's ideas that the pineal gland was the seat of the soul.[42]

The generation of Dutch physicians that taught Sibbald at Leiden, which included van Horne and Sylvius, as well as Johannes van der Linden (1609–64) were keen not to replace one set of metaphysical philosophy, scholasticism with another, and frequently disdained philosophers that sought to find underlying causes.[43] Sibbald noted that van der Linden "was famous for critical thinking," and like Sylvius, van der Linden believed that "medicine should not be based on philosophical speculations but on [medical] experience."[44] Charles Withers has seen Sibbald's lack of formal engagement with mechanistic natural philosophy as the result of it not being fundamental to a Baconian empirical project.[45] However, Leiden also instilled a suspicion of a new type of mechanistic natural philosophy in Sibbald. This suspicion of overarching theory and concerns about stepping over disciplinary boundaries found their echo in Sibbald's dispute with mathematical physicians like Archibald Pitcairne, and those who sought to apply mathematics unduly to natural history.[46]

Not only anatomy but also the second strand of Dutch medical education, chemistry, was an active field of observation and theory at Leiden. Sylvius was a proponent of iatrochemistry, which led him for instance to favour the use of taste in observational medicine over the primacy of the traditional Galenic emphasis on sight and touch.[47] Sylvius taught chemistry privately and advocated for the establishment of a chemical laboratory at the university which was, however, not established until 1669, after Sibbald's departure.[48] As in his anatomy teaching, Sylvius avoided an adherence to theories which required hidden

---

[41] Sibbald, *Memoirs*, 57. Private anatomical demonstrations, normally of animal cadavers were common at Leiden, and the Danish physician Ole Borch (1626-1690) had attended 37 of these during his time at Leiden, which overlapped with that of Sibbald, Huisman, "The Finger of God," 86.
[42] Ragland, "Mechanism" 198-9.
[43] Levitin, *Kingdom*, 45, 109.
[44] Sibbald, *Memoirs*, 57. Huisman, "The Finger of God," 72.
[45] Withers, "Geography and the Scientific Revolution," 89.
[46] See below, Chapter IV.
[47] Ragland, "Chymistry," 8, 14.
[48] John C. Powers, *Inventing Chemistry: Herman Boerhaave and the Reform of the Chemical Arts* (Chicago: University of Chicago Press, 2012), 49.

causation. Particularly, as Allen Debus has pointed out, Sylvius was not a Helmontian chymist, and eschewed the mystical hermeticism and grand scheme of the world inherent in Paracelsian thought.[49] Sylivus rejected both a blind following of ancient authorities and deference to trends in contemporary medical theory and instead emphasized the role of experience.[50]

While Sibbald does not record that he attended Sylvius' private chemistry courses, he did attend private instructions in chemistry under "a German called Witichius" and later under Christia[a]n Marggraf (1626–1687).[51] Witichius has not been identified, but he might have been one of several apothecaries who took advantage of the fact that, despite becoming part of medical education, the artisanal status that chymistry held kept it off the medical curriculum of most universities, including Leiden.[52] More is known about Marggraf, whose courses emphasised the role of chemistry as a pharmaceutical method, supplementing, but not replacing traditional medical teaching.[53] His private courses were given despite a prohibition by the university to do so, and his teaching would culminate in the publication of a textbook on medical simples and composites in 1674.[54] Through instruction by Sylvius and the medico-apothecary methods of teachers like Marggraf, Sibbald gained experience in chemical methods and theories, although, like his encounters with mechanistic or corpuscularian philosophies, they did not amount to following a single comprehensive theory of the workings of the human body.

The third area of practical medical education at Leiden after anatomy and iatrochemistry, was natural history. This commenced early in the morning during the lectures in botany at the university physic garden under Adolph Vorstius (1597–1663), which Sibbald attended.[55] Vorstius' natural philosophical leanings are hard to establish, and while he had been

---

[49] Allen G. Debus, *Chemistry and Medical Debate: Van Helmont to Boerhaave* (Canton, MA: Science History, 2001), 60.

[50] Debus, *Chemistry and Medical Debate*, 61.

[51] Sibbald, *Memoirs*, 56-7.

[52] Powers, *Inventing Chemistry*, 46. Witichius is not the German theologian and Cartesianism philosopher Christoph Wittich, who was at Leiden from 1671.

[53] Powers, *Inventing Chemistry*, 52.

[54] Powers, *Inventing Chemistry*, 52. The textbook is Christian Marggraf, *Materia medica contracta, exhibens simplicia & composita medicamenta officinalia* (Leiden: Aernout Doude, 1674).

[55] The lecture schedule for the winter and summer terms during Sibbald's time at Leiden both bagin with "D. Adolfus Vorstius Plantas in Horto Acad. demonstrat" at seven in the morning. Philipp Christiaan Molhuysen, *Bronnen Tot de Geschiedenis Der Leidsche Universiteit 1574-1811*, vol. 3 ('S-Gravenhage, 1918), 140*-141*

interested in Descartes' theories of animal spirits, it seems that his main interests were botanical and philological. A few years before Sibbald attended Leiden university, Vorstius held the funerary oration of the French classical scholar Claude Saumaise (1588–1653), who would be one of Sibbald's most celebrated antiquarian humanist role-models.[56] Vorstius was not the only one of Sibbald's Leiden contacts who had natural historical interests. The medical professor Johannes Van der Linden had studied under Vorstius and he had, before being appointed professor of practical medicine and director of the hospital at Leiden in 1651, been professor of anatomy and botany at Franeker. The chemist Christian Marggraf's pharmacological teaching is likely to have included instruction in botanical simples, and Sibbald pointed out that Christian's brother George had written *The Natural History of Brazil* (1648).[57] Sibbald's fellow student Nicolas Steno was also someone who was experienced in different areas of natural history and developed influential ideas regarding fossilisation and stratigraphy. Steno was a cosmopolitan traveller, visited many of Europe's most influential natural history collections, and became a collector and curator for the Grand Dukes of Tuscany.[58] By the time of meeting Sibbald, Steno had already had experience with making a herbarium of dried plants, and he had seen the collections of Thomas Bartholin (1616–1680) and Ole Worm (1588–1654) in his native Copenhagen, both of which would become important points of reference not only on how museums were to be established but also what they could accomplish.[59] Beyond Leiden, Sibbald's botanical studies also took him to Utrecht and to Amsterdam, where he "went and herbarized in the downes and woods wt the gardner of the medicine garden."[60]

Sibbald defended his thesis *De Variis Tabis Speciebus* on 2 July 1661, in which he described different types of wasting and blood diseases, including *phthisis*, or consumption.[61] He did

---

[56] Theo Verbeek, "Vorstius, Adolph (1597–1663)" in *The Cambridge Descartes Lexicon*, ed. Lawrence Nolan, (Cambridge: Cambridge University Press, 2015), 756. See Section 4.3
[57] Sibbald, *Memoirs*, 57. Mendyck saw this as evidence that Sibbald was able to get acquainted "at least, on a general level, with the new field of natural history," Stanley A. Mendyk, *'Speculum Britanniae': Regional Study, Antiquarianism, and Science in Britain to 1700* (Toronto, 1989), 215.
[58] Steno's extensive museum itinerary has been explored in Elsebeth Thomsen, "Niels Stensen - Steno, in the World of Collections and Museums," in *The Revolution in Geology from the Renaissance to the Enlightenment*, ed. Gary D. Rosenberg (Boulder, Colorado, 2003), 75-89.
[59] See Chapter VI.
[60] Sibbald, *Memoirs*, 58.
[61] Robert Sibbald, *Disputatio Medica de Variis Tabis Speciebus*, (Elsevier: Leiden, 1661).

so under the auspices of Sylvius, who had advanced a new theory of *phthisis* based on observation of tubercles on the lungs and had stressed the importance of clinical observation as well as post-mortem examination of patients.[62] Anatomical pathology of *phthisis* was also an interest of Sibbald's anatomy teacher, van Horne, who confirmed Sylvius' observations by his own dissections.[63] This emphasis on observational practices in clinical settings was emphasised by Sibbald in his medical dissertation, where Sibbald cited the work of the English physician Christopher Bennet (1617–1655) and that of the German surgeon Wilhelm Fabry (Fabricius Hildanus 1560–1634).[64] Bennet had given a pathological account of consumption in his *Theatri tabidorum vestibulum* (1654) in which he had made extensive references to observations of cases. Sibbald, likewise, included patient observations from the hospital at Leiden, as well as descriptions of the pathologies, which show a strong influence of Sylvius and van Horne.[65]

After the summer break, during which he became ill with a fever which was cured with red currant juice, Sibbald left for Paris, via Doort, Calais and Rouen.[66] He carried with him a letter of recommendation from the Leiden rector Vorstius to his friend and colleague Guy Patin (1601–72) in Paris, an avowed enemy of Helmontian chemical medicine.[67] In this recommendation, Vorstius not only described Sibbald as a "very honourable medical student," he also included a reminder of the Auld Alliance between Scotland and the French kings. Patin, for his part, praised Sibbald's learning and good morals to Vorstius and promised to offer Sibbald any assistance necessary.[68] Regarding relations between Scotland and France, Patin was less optimistic, as he feared that the historical winds had changed and that the Scots would soon turn into Englishmen, should they acquire the temperament and spirit of their southern neighbours. Patin, the "long-time enemy of all chemists," might also have been concerned by an English turn towards iatrochemistry and was generally averse to

---

[62] Ragland, *Making Physicians*, 378-9.
[63] Ragland, *Making Physicians*, 384.
[64] Sibbald, *Disputatio*, B2r. J. F. Payne, and Patrick Wallis, "Bennet, Christopher (1617–1655), physician," *Oxford Dictionary of National Biography* [online], 2004.
[65] Sibbald, *Disputatio*, A3r-A3v.
[66] Sibbald, *Memoirs*, 58.
[67] Adolph Vorstius to Guy Patin, 4 September 1661, Loïc Capron, "Correspondance Complète de Guy Patin et Autres Écrits," 2022, https://www.biusante.parisdescartes.fr/patin/?let=9072 (accessed 2/10/2023)
[68] Guy Patin to Adolph Vorstius, 3 January 1662, "Correspondance Complète de Guy Patin," https://www.biusante.parisdescartes.fr/patin/?let=1205 (accessed, 2/10/2023)

modern theories such as Harveyian circulation which Patin described in a thesis as a "famous and murky doctrine" and "confusion in all aspects."[69]

Like Vorstius, Patin was a humanist bibliophile, and Sibbald carried with his letters of recommendation several books from Leiden to Paris, including Gronovius' edition of Seneca's tragedies, fresh from the Elsevier press.[70] Patin and Sibbald became well-acquainted with one another and Patin allowed Sibbald use of his vast library and manuscripts, including manuscripts written for the instruction of his physician sons.[71]

Paris also allowed Sibbald to expand his studies in natural history, and he attended the study of "plants under Junquet [Denis Joncquet (1600–1671)] in the King's garden," a friend of Guy Patin's.[72] He also attended the public lessons of François Cureau de la Chambre (1630–80) who, in 1671, would become "démonstrateur-opérateur de l'intérieur des plantes médicinales," but whose skill seems to have been less medical but rather literary.[73] Sibbald also attended public botanical lessons by a Monsieur Bazalis, who has not been identified yet.[74] These educational offerings were not part of the Paris medical faculty but were part of the extra-mural medical teaching industry that was as flourishing in Paris as it had been at Leiden. The King's Garden, established as a royal institution which consciously bypassed the jurisdiction of the university was perhaps the most important place for the intersection of practical, demonstrative and mnemonic natural knowledge during Sibbald's studies.[75] Sibbald judged it "the most compleat that is in the World, either for the number or the Quality of the Plants."[76] In addition to his lectures at the King's Garden, Denis Joncquet also gave demonstrations in his private garden of 2,400 plants three times a week around the time of Sibbald's stay in Paris, and it might have been these that Sibbald attended.[77]

---

[69] Anita Guerrini, *The Courtiers' Anatomists: Animals and Humans in Louis XIV's Paris* (University of Chicago Press, 2015), 209.
[70] Adolph Vorstius to Guy Patin, 4 September 1661, "Correspondance Complète de Guy Patin," https://www.biusante.parisdescartes.fr/patin/?let=9072 (accessed 2/10/2023).
[71] Sibbald, *Memoirs*, 58.
[72] Sibbald, *Memoirs*, 59.
[73] Guerrini, *The Courtiers' Anatomists*, 31-2, 207.
[74] Sibbald, *Memoirs*, 59. Guerrini, *The Courtiers' Anatomists*, 291.
[75] Guerrini, *The Courtiers' Anatomists*, 31.
[76] Andrew Balfour, *Letters Writen to a Friend; Containing Excellent Directions and Advices for Travelling Thro' France and Italy* (Edinburgh: sn, 1700), Foreword, vi.
[77] Guy Patin to André Falconet, 27 May 1661, "Correspondance Complète de Guy Patin," https://www.biusante.parisdescartes.fr/patin/?do=pg&let=0699 (accessed 30/04/2024).

While we do not have a detailed record of Sibbald's studies under Joncquet, we have manuscript notes taken by another Scot, Patrick Murray, Laird of Livingstone (d. 1671), who became acquainted with Sibbald during the 1660s. Murray, who was instrumental in establishing the physic garden at Edinburgh with Sibbald and Andrew Balfour, took these notes during Joncquet's lectures at Paris in 1669 and 1670.[78] Like Sibbald and Murray, Balfour might have attended Joncquet's course at Paris and when he gave Murray advice for a continental tour, he encouraged Murray to visit the Paris garden.[79] Murray's lecture notes give hints which show how the Paris garden was used as an encyclopaedic site of study which followed Renaissance ideals of botanical teaching that had evolved over the previous century. [80] It is reasonable to assume that the instruction under Jonquet did not vary much in the ten years that separated Sibbald's studies from his. Murray's notes contain details of over 400 species of plants, beginning with *Alsine* (chickweed) and ending with trees (Figs, Olive, Pomegranate, Peach, Bergamotte (*Malum aurantium*), including native Western European plants as well as imports from the New World.[81] The neatly written entries, without deletions or insertions, give Latin, Greek and French names of plants, reference various uses and recommend precise dosages for medical use, as well as their effects in Galenic language. The title page indicates that instruction was separated between demonstration (*demonstratio*) and notes (*notas*), both of which were conducted over a little more than one month.[82] The ordering – non-alphabetic – suggests that the *demonstratio* was done thematically, perhaps following the way the plants were arranged in the garden itself, for instance with mosses and ferns, requiring similar environments, being grouped together. Joncquet's instruction emphasised both medical use and ancient knowledge and included etymological details as well as references to Pliny and Dioscorides. This instruction was in the humanist tradition of natural history that sought to make sense of well-known

---

[78] Sibbald, *Memoirs*, 65. The lecture notes are in NLS Adv.MS 23.5.10 and were part of James Sutherland's library purchased by the Faculty of Advocates in 1705 and 1707. The initials P.M. on the notes point to Murray who was in Paris in 1670, and who had inscribed eight books from Paris in Sutherland's library. Robert L. Betteridge, *The Library of James Sutherland: As Purchased by the Faculty of Advocates, Edinburgh, in 1705 and 1707* (Edinburgh: Merchiston Publishing, 2013), xvi. On Murray and Balfour, see Section 5.2.

[79] While Balfour does not mention Jonquet's course, he did recommend visiting the King's garden as well as the private garden of the academician Nicolas Marchant. Balfour, *Letters*, 10.

[80] Ogilvie, *The Science of Describing*, 160-4.

[81] NLS Adv.MS 23.5.10.

[82] "Incepta quoad Demonstra°nem die Luna 9° et quoad Notas die Martis Junii 11° 1670 finita vero die Martis Julii 15," NLS Adv. MS.23.5.10, f. 1v.

and new plants by reference to ancient authorities but utilised modern didactic methods like teaching gardens.[83] Murray died during his continental tour which means he did not utilise his knowledge gained there when the garden at Edinburgh was established and Sibbald and Balfour had a more profound impact on that institution. It is worth noting that, when the second Edinburgh physic garden was laid out by James Sutherland in 1675, medicinal plants were laid out alphabetically to aid their identification by novices.[84] The rest of the garden was laid out in a more systematic arrangement by genera and species which aided didactic and mnemonic purposes.[85] How far the Edinburgh garden owed its layout and emphasis to the practical experiences of Sibbald and perhaps Balfour at the Paris garden, and how far to methods by the Englishman John Ray (1627–1705) and the Scot Robert Morison (1620–1683) requires further study, but Sibbald's natural historical education at Paris had a lasting impact, as his comments in the following chapter will show.[86]

During Sibbald's time at Leiden, he was able to familiarise himself with all three pillars of Dutch medical education, gain practical experience in the hospital, dissection theatre and physic gardens and was able to have access to celebrated professors like Sylvius as well as more obscure teachers like "Witichius." At Paris, Sibbald's natural history training was shaped by humanist learning, methodological training in identifying and using plants as *materia medica*. His tutorship by the bibliophile Patin sharpened his philological training and his knowledge of classical philosophy, including Seneca. For Sibbald and other continentally educated Scots like Balfour and Murray, Leiden and Paris provided the models of institutions which supported techniques of observation and teaching, such as physic gardens, hospitals, laboratories, and dissecting theatres, some of which physicians of Sibbald's generation aimed to establish in their home country.

In the Low Countries and France, Sibbald's teachers included men who, for one reason or another, were suspicious of or hostile to new systems of medicine, either anti-Helmontian like Patin, or anti-Cartesian like Sylvius, and this suspicion of theory would carry on in

---

[83] Ogilvie, *The Science of Describing*, 87.
[84] Forbes W. Robertson, "James Sutherland's 'Hortus Medicus Edinburgensis' (1683)," *Garden History* 29, no. 2 (2001): 121.
[85] *Ibid.*
[86] Sibbald noted in his *Vindiciae* the influence of Ray and Morison on his botanical classification, which he studied together with Sutherland at his home in the Kipps in 1673. Sibbald, *Vindiciae*, 15.

Sibbald's own work. However, continental training was not a blind following of Galenic precepts, but rather an attempt at integrating ancient theories of disease with new methods of observation and teaching, which Sibbald aimed to bring to Scotland with him.

2.2 Joining the "Antient Method to the Moderne" – Andrew Balfour, Martin Lister and the primacy of natural history

Sibbald's return to Scotland in 1662 was preceded by his obtaining, for a fee, the patent to practice medicine from Angers, a favourite "venal" university which provided the same service to other British Protestant physicians.[87] Sibbald arrived at Edinburgh in October 1662, following a brief three-month stint in London. Sibbald's memoirs do not give many details about his London stay, and if he met any members of the nascent Royal Society or College of Physicians there, he did not mention it.[88] Once back north of the border, Sibbald's time was spent practising medicine, initially free of charge, and acquainting himself with the local conditions of medical practice in Scotland, which included speaking to apothecaries and surgeons, and learning which treatments and medicines were prescribed locally.[89] Sibbald emphasised in his autobiography that, despite his continental training, he consulted with the local practitioners and "carried with a great deal of deference and respect to ym."[90]

One of these apothecaries was very probably Matthew Mackaile [or Mackail] (fl. 1657–1696), who lived in Edinburgh before moving to Aberdeen after 1666 and who described himself as Sibbald's "first adviser to the study of Medicine."[91] Mackaile was one of the most

---

[87] Sibbald, *Memoirs*, 59. Andrew Cunningham, "The Bartholins, the Platters and Laurentius Gryllus: The Peregrinatio Medica in the Sixteenth and Seventeenth Centuries," in *Centres of Medical Excellence? Medical Travel and Education in Europe, 1500-1789*, ed. Ole Peter Grell, Andrew Cunningham, and Jon Arrizabalaga (London: Routledge, 2010), 9. The Aberdeen physician and gardener Robert Morison (1623–1683) graduated there in 1648.

[88] Many accounts of Sibbald claim that in London he met the Royal Society's first president, the Scot (Sir) Robert Moray (1606-73) in London (e.g. Emerson, "Sir Robert Sibbald, kt.," 43; Wood "The Scientific Revolution in Scotland," 267). However, this seems to be based on a misreading of Sibbald's autobiography where he states that two years after his return to Scotland he met up with his cousin Patrick Drummond who "sometyme stayed at Court wt Sir Robert Morray, the famous virtuoso, and acquainted me with the curious experiments made by him; his [presumably Drummond's] letters were excellent, and full of good advices and discoveries," *Memoirs*, 63. While Sibbald uses Moray's account of the tides in his *Scotia Illustrata* (see page 60) I can find no evidence of and direct contact between them.

[89] Sibbald, *Memoirs*, 61.

[90] Sibbald, *Memoirs*, 61.

[91] Helen M. Dingwall, "Mackail, Matthew (fl. 1657–1696), apothecary and physician," *Oxford Dictionary of National Biography* [Online] 2004; Matthew Mackail to Robert Sibbald, 26 May 1686, NLS MS 2257, f. 5.

prolific Scottish writers on chemistry and in 1659 published a description of two mineral wells close to Edinburgh based on Helmontian iatrochemistry, which he called "nature-imitating-art Chymie, being only taken from the resolutory part, which is subservient to medicine."[92] Although Mackaile did not have a continental education, he continued to write on chemical matters, even though he professed that he had "scarce passed the Theshold of a *Laboratory*, having been chiefly busied in Chirurgicall and Pharmaceuticall Operations, and only, divertified my self with some Chymicall, and those such only as were inservient to *Medicine*."[93] Mackaile was also an ardent Presbyterian biblical scholar and his writings included a refutation of the theories presented in the controversial Thomas Burnet's *Telluris Theoria Sacra* (1681) in which he argued that Burnet's theories about the biblical flood stem from a misreading of scripture and a flawed command of chymistry.[94] It was Mackaile's strong theological leanings which, upon Sibbald's conversion to Catholicism in 1685, occasioned from him scathing letters to Sibbald, peppered with Bible quotes, and testifying to a strained friendship.[95]

However, apart from contacts with local medical practitioners and apothecaries like Mackaile, Scotland did not offer Sibbald many opportunities to continue his studies of anatomy and chemistry after Leiden and Paris. Edinburgh lacked the requisite institutional infrastructure and even almost half a century later, Sibbald called the lack of a hospital in the city "deplorable."[96] There were no public dissections in Edinburgh until the 1690s, and the apothecaries and surgeons of Edinburgh were engaged in protracted legal wrangling on matters of licensing between the 1650s and the 1680s (when the physicians also became involved), which might have hampered the establishment of stable institutions for practice

---

[92] Matthew Mackaile, *Moffet-Well: Or, A Topographico-Spagyricall Description of the Minerall Wells, at Moffet in Annandale of Scotland…* (Edinburgh: Robert Brown, 1664), 12. The work was first published in Latin in 1659.
[93] Matthew Mackaile, *The Diversitie of Salts and Spirits Maintained…* (Aberdeen: Iohn Forbes, 1683), Epistle to the Reader, n.p.
[94] Matthew Mackaile, *Terrae Prodromus Theoricus….* (Edinburgh: Iohn Forbes, 1691); on Burnet's *Sacred Theory,* and some of its critics see Lydia Barnett, *After the Flood: Imagining the Global Environment in Early Modern Europe* (Baltimore: Johns Hopkins University Press, 2019), 89-128 and William Poole, *The World Makers: Scientists of the Restoration and the Search for the Origins of the Earth* (Oxford: Peter Lang, 2010), 55-64.
[95] NLS MS 2257, ff. 4-5.
[96] Cunningham, "Sir Robert Sibbald," 152.

and teaching.[97] Anatomy and chemistry, which formed two out of the three practical areas of Sibbald's continental medical training, were therefore not in the best state in his home country, and he turned to the third: natural history.

In his autobiography, Sibbald stressed this primacy of natural history in medical education, which he saw deriving from his French rather than his Dutch training:

> "…I had learned at Paris that the simplest method of Physick was the best, and these that the country affoorded came neerest to our temper, and agreed best with us, so I resolved to make it part of my studie to know what animalls, vegetables, mineralls, metalls, and substances cast up by the sea, were found in this country, yt might be of use in medicine, or other artes usefull to human lyfe, and I began to be curious in searching after ym and collecting ym, which I continued to do ever since."[98]

Even though Sibbald wrote this statement in the mid-1690s, while under attack for his ideas of indigeneity and natural historical conduct, his actions over the coming decades indicate that this mission statement did reflect his views of the time.[99] In 1670, he co-founded the Edinburgh physic garden as a teaching space which mirrored those at Leiden and Paris, and his *Scotia Illustrata* of 1684 reflects a medical chorography that prioritises local *materia medica*.[100]

In addition to contacts with local apothecaries and practitioners, Sibbald assembled a friendship network with other Scots interested in natural history, which included his cousin Patrick Drummond, who "confirmed in me the love and practice of a virtuous and phylosophick lyfe," the botanist Patrick Murray of Livingstone and, more importantly for Sibbald's later collecting interests, his cousin Andrew Balfour (1630–1694).[101] Balfour's collecting activities will be examined in Chapter V, but Balfour's continental training in natural history was similar to Sibbald's, as documented by Sibbald in the posthumous *Memoria Balfouriana*.[102] After his undergraduate studies at St. Andrews and Aberdeen,

---

[97] Helen M. Dingwall, *"A Famous and Flourishing Society:" The History of the Royal College of Surgeons of Edinburgh, 1505-2005* (Edinburgh: Edinburgh University Press, 2005), 67-68. The rivalry between the Physicians and Surgeons has been explored in Rosalie Mary Stott, "Incorporation of Surgeons and Medical Education and Practice in Edinburgh, 1696-1755" (PhD Thesis, The University of Edinburgh, 1984).
[98] Sibbald, *Memoirs*, 64-5.
[99] See Chapter IV.
[100] See Chapter III.
[101] Sibbald, *Memoirs*, 62-64.
[102] Robert Sibbald, *Memoria Balfouriana, Sive, Historia Rerum, pro Literis Promovendis* (Edinburgh: Andrew Anderson, 1699). John Walker provided a decent, if incomplete and sometimes unreliable translation in his

Balfour spent a considerable time in Paris in the 1650s and travelled to London, Oxford, Blois, Montpelier and Padua, before attaining his doctorate at Caen.[103] In the account of his life, Sibbald stressed the practical thrust of Balfour's medical education. At Paris, Balfour's instructions included those in botany, possibly under Denis Joncquet, as well as anatomical dissections in the King's Garden, and many of Balfour's teachers in the 1650s were the same as Sibbald's a few years later, including François Cureau de la Chambre and the anti-Helmontian bibliophile Guy Patin.[104] As Sibbald had done at Leiden, Balfour visited the hospital "daily," and he received instruction in chemistry at Annibal Barlet's private laboratory, in a tradition of Parisian extra- and intramural iatrochemistry that irritated Patin.[105] Balfour later noted that Barlet's course lasted three weeks from two to five in the afternoon and cost the student ten crowns, plus two crowns for Barlet's textbook.[106] While Balfour was not at Leiden, Sibbald gave an account of his medical education that varied little from his own, and emphasised anatomy, clinical practice, chemistry and natural history. While the Paris faculty might have lacked some of the more innovative theorists like Sylvius, the availability of extramural teaching meant that it was also not just a centre of reactionary medical practice that rejected anything but Galen or Hippocrates.[107] Particularly in natural history, Balfour's training seems to have surpassed Sibbald's who stated that through his acquaintance with Balfour, he came "to know the best writers on yt subject"[108]

"Memoirs of Sir Andrew Balfour," in *Essays on Natural History and Rural Economy* (Edinburgh: Edinburgh University Press, 1808), 347-69; Walker's notes for this translation date from 1783, and are in EUL Coll-205/2/3 (Dc.1.59), ff. 61ff.

[103] Sibbald, *Memoria Balfouriana*, 49-53; Walker stated that at London Balfour "was conversant with the celebrated Harvey, Sir Theodore Mayerne, Dr Glisson, Dr Charleton, and Sir John Wedderburn," (*Essays*, 349), but Sibbald's original gives "Londini etiam diu moratus est, quod ibi maxime vigeret praxis Medica, cum Antiquorum tum Recentiorum, scriptis innixa, essentque illic illustres Viri, qui Medicinam non parum excoluerant, Harveyus, de Mayerne, Glissonius, Whartonus, Bateus, Scarbrughius, et Wedderburnus nostras et Charletonus," Sibbald, *Memoria Balfouriana,*" 50.

[104] Sibbald, *Memoria Balfouriana,*" 49-51.

[105] Didier Kahn, "The First Private and Public Courses of Chymistry in Paris (and Italy) from Jean Beguin to William Davisson." *Ambix* 68, no. 2–3 (2021): 269-270. A predecessor to Barlet was the Scot William Davisson (ca.1593–1673); "Pour le chimiste Barlet, il demeure dans le Collège de Cambrai, dans quelque grenier où il a quelques fourneaux et où il tâche de gagner sa vie en faisant quelque cours de chimie…et appelle sa chimie *l'Art de Dieu*, *la physique résolutive*, etc. Il m'est venu voir deux fois céans et m'a donné son livre," Guy Patin to Charles Spon, 21 April 1655, "Correspondance Complète de Guy Patin," https://www.biusante.parisdescartes.fr/patin/?do=pg&let=0399 (accessed, 15/01/2024).

[106] Balfour, *Letters*, 11.

[107] The conservative view has been put forward by scholars like L.W.B. Brockliss, "Medical Teaching at the University of Paris, 1600-1720," *Annals of Science* 35, no. 3 (1978): 221-51.

[108] Sibbald, *Memoirs*, 64.

French continental training also shaped the ideas of another physician who would become a role model for Sibbald, and who he regarded as practising the closest in medicine like himself: the coeval English physician Martin Lister (1639–1712).[109] Lister, like Sibbald and Balfour, went to the continent during the late 1650s and early 1660s, eschewing the longer course of medicine at Oxford or Cambridge possibly because medical education in these cities was seen to lack innovation and prestige.[110] Lister's training did not take him to Leiden or Padua but to Montpellier, a city which was closely associated with botany and practical training in pharmaceutical matters and which offered opportunities to botanize in the surrounding countryside which was, as one seventeenth-century student there put it, "nothing else but a lovely garden."[111] Like Sibbald and Balfour, Lister's medical education included training in chymistry, and at Montpellier, he was exposed to Cartesian mechanistic and corpuscularian ideas.[112] In France, Lister met the naturalist John Ray (1627–1705) as well as Sibbald's former classmate Nicolas Steno with whom in 1665 he conducted the dissection of an ox head, similarly to the dissection that Steno had performed in Sibbald's lodgings at Leiden some five years previously.[113] Before returning to England, Lister and Ray undertook a natural history tour which culminated with a visit to Joncquet in Paris, thus rounding off an education which in many ways resembled that of Sibbald and Balfour.[114]

For Lister, as for Sibbald, the practice of medicine was intimately connected with knowledge of the workings of nature. This allowed the physician to discern what was possible in nature at large as well as in the microcosm of the human body, which allowed the physician to identify the causes of disease, as well as a cure. By contrast, bad natural history would lead to bad medicine. For Lister, this was exemplified by some of the ideas put forward by the prominent physician Thomas Sydenham (1624–1689), who in 1698 had claimed that miasmas from subterranean minerals could be a causal agent for smallpox. While, in theory, this accorded with Hippocratic ideas of environmental influences on

[109] The most complete biographical treatment of Lister is Anna Marie Roos, *Web of Nature: Martin Lister (1639-1712), the First Arachnologist* (Leiden: Brill, 2011).
[110] Roos, *Web of Nature*, 53.
[111] Michael Stolberg, "Training Future Practitioners: Medical Education in Sixteenth-and Early-Seventeenth-Century Padua and Montpellier from the Students' Perspective," in *Transforming Medical Education*, ed. Delia Gavrus and Susan Lamb, (Montreal: McGill-Queen's University Press, 2022), 117.
[112] Roos, *Web of Nature*, 60-1.
[113] Roos, *Web of Nature*, 67.
[114] Roos, *Web of Nature*, 73.

health, Lister did not reject Sydenham's environmental determinism, but rather his observational skill which had shown that Sydenham's conclusions were in "ignorance of natural history."[115] The majority of Lister's natural historical engagement concerned molluscs, arachnids and fossils, and his writings on animal anatomies were connected to his medical ideas, which meant that they sometimes transgressed the boundary between human and animal.[116] Medical and natural history treatises could be included in the same volume, although commercial considerations might have played a role.[117] Even then, Lister prioritised natural knowledge over pathology, and in a volume which combined a treatise on gallstones with another on molluscan anatomy, Lister claimed natural history was more fruitful than many medical treatises because "medicine, except in so far [as] it is based upon a knowledge of nature, is a thing altogether vain and futile." [118] This hybrid approach to medicine and natural history was not without critics, however, and Lister was aware of the danger of his natural history interests overshadowing his reputation as a physician and that another work on molluscs might "provoke the laughter of spectators."[119]

Sibbald, however, understood Lister's work and received it with enthusiasm. When reviewing the hybrid gallstone-mollusc work, Sibbald praised the connection Lister made between the generation of stones in the bladder, the way shells and pearls are made, and petrifactions from mineral waters.[120] Sibbald wrote that Lister's method of explaining medical phenomena with natural historical arguments in this manner "is most satisfying in my Opinion, and preferable to what I have seen Written by any other." Sibbald aimed to contribute to Lister's explanation by providing the English physician with his own observations of a bladder stone, which "consisted of many Coats, like the Skins of an Onion," and he sent Lister accounts of stalactites found in a Scottish cave, along with some shells. [121] For Sibbald, the strength of Lister's approach lay particularly in his "joining Antient and Modern Learning together, in my Opinion doth both illustrate and advance our Art,"

---

[115] Roos, *Web of Nature*, 345-6. On Sydenham's reputation, see Peter Anstey, "The Creation of the English Hippocrates," *Medical History* 55, no. 4 (2011): 468-73, 477.
[116] Roos, *Web of Nature*, 352. On Lister's engagement with fossils, see Chapter VII.
[117] Roos, *Web of Nature*, 343.
[118] Martin Lister, *Conchyliorum bivalvium utriusque aquae exercitatio anat. tertia* (London, 1696), Cited in Roos, *Web of Nature*, 343.
[119] Roos, *Web of Nature*, 338.
[120] *Philosophical Transactions of the Royal Society of London*, Vol XIX (1696), 321.
[121] *Ibid.*

and Sibbald was persuaded that this was the "Method […] for promoting Learning best."[122] Moreover, Lister's work, according to Sibbald, might "prevail with some to abate of that Contempt they had of the Ancient Phisitians."[123] Sibbald had used Lister's work on molluscs and spiders in his *Scotia Illustrata*, and called "one of the greatest advancers and improvers of Natural History," who had "made so many useful discoveries relating yr to," and who had so "just ane esteeme for the Ancient Physicians."[124] Acknowledging that there had been recent advances in medical theories, Sibbald judged "the Ancients have been as Happie as any of this age, in the Cure. And I can hardly believe he can be a happie physician who joineth not the Antient Method to the Moderne," a task which he thought Lister excelled at.[125]

Lister's natural historical emphasis was part of a larger programme within the Royal College of Physicians in London during the 1690s that sought to respond to institutional challenges from apothecaries as well as proponents of empirical medicine. [126] The London physicians aimed to combine natural historical interests with commentaries on medical classics as part of a "fashionable revival of Hippocrates's theories of environmental determinism in early modern medicine," as Roos put it.[127] This did not exclude other methods from iatrochemistry and corpuscularianism but rather showed a syncretic approach. In Scotland, the Galenic physicians of the Royal College of Physicians faced similar challenges both from within their own medical community, as well as rival institutions like the College of Surgeons.[128] Like Lister, Sibbald sought to employ a variety of methods in medicine, although in his syncretism he saw natural history as taking primacy.

Commitment to ancient texts and virtues and modern methods, particularly those drawn from natural history, became a tenet of Sibbald's writings and emphasised a scholarship that exemplified *vetus et nova* or "old-new." Historicization of the observational virtues of ancient writers had a long tradition in sixteenth- and seventeenth-century medical

---

[122] *Philosophical Transactions*, Vol XIX (1696), 321.
[123] *Ibid.*
[124] *Scotia Illustrata*, part 2, lib 3, 27, 32. Robert Sibbald to Martin Lister, 22 Mar 1695, Bodl. MS Lister 36, f. 116 via Early Modern Letters Online (hereafter: EMLO).
[125] *Ibid*.
[126] Roos, *Web of Nature*, 338-40.
[127] Roos, *Web of Nature*, 339.
[128] See Chapter IV.

humanism and natural philosophy both in Britain as well as on the continent.[129] Old-new methodologies were also common natural history, which the construction of which by early modern writers like Cesalpino, Bauhin or Parkinson included a hearkening back to a largely imagined ancient tradition derived from the methodologies of classical predecessors such as Pliny and Dioscorides.[130] A textbook used in the Scottish university setting was the *Philosophia vetus et nova* (1678), written by the French cleric and *Academicién*, Jean-Baptiste Du Hamel (1624–1706), and used by Sibbald in his *Scotia Illustrata*.[131] For Sibbald, old-new medical ideas emphasised the empirical value and medical theories of ancient authors like Galen, Dioscorides and Hippocrates, which had been supplemented, but not superseded, by observations made in modern times. Sibbald's idea of human knowledge was accumulative, as he explained in his 1706 tract which advertised a planned course for the teaching of medicine.[132] Using Seneca, his favourite author, Sibbald explained that humans in each age were allowed an insight into only a part of nature at once, and stepped ever closer into the inner sanctum.[133] This does not mean, Sibbald emphasised, that "I am so bound to Hippocrates' words that I will teach nothing except what appears in his writings."[134] Instead, he intended to "relate to you […] an "old-new" medicine" that is "supported both by the teaching and the observations of the ancients, and significantly illustrated and increased by the experiments of the more recent writers."[135] However, for Sibbald, modern hypotheses were of little account since "I know that while a day destroys the fabrications of opinions it confirms the judgements of nature."[136]

Sibbald's optimism about being able to refute modern hypotheses quickly was misplaced, and he ended up not teaching the planned course due to a lack of interest. Blaming the

---

[129] Levitin, *Ancient Wisdom*, 230-328.
[130] On the invention of the discipline of natural history, see Ogilvie, *Science of Describing*, 87-138.
[131] Jean Baptiste Du Hamel, *Philosophia vetus et nova ad usum scholae accommodata in Regia Burgundia ... pertractata.* (Paris: Étienne Michallet, 1678), in the Edinburgh college library at least since 1699, see Shepherd, "Philosophy and Science," 270. The Catholic associations of that work, which drew from a Scottish university visitation commission in the 1690s the comment that among the courses in philosophy it "runs fairest," but could not be used in its entirety, because it "is done by a popish author and smells rank of that religion," Shepherd, "Philosophy and Science," 52. Sibbald uses it in the *Scotia Illustrata*, pars.1, lib.1, 18, 26 and comments favourably on it in the *Vindiciae,* 6.
[132] Cunningham, "Sir Robert Sibbald and Medical Education."
[133] Cunningham, "Sir Robert Sibbald and Medical Education," 144, citing from Seneca, *Naturales Quaestiones*, 7.31.
[134] *Ibid., 145*.
[135] *Ibid.*
[136] *Ibid.*

novatores for this, Sibbald wrote to Hans Sloane: “I offered to teach … a course, drawen from the best of the Antients and Moderns; bot they were for the shortest way of some moderne Hypothesis.”[137]

Sibbald was as cautious of overarching hypotheses in medicine as his teachers at Leiden had been fifty years earlier. Whereas the target of their scorn had been Cartesian metaphysics, Sibbald saw medicine under threat from mathematical physicians who sought not to reform and augment, but to replace. This challenge will be addressed in Chapter IV, but this chapter sought to show that Sibbald had been exposed to a variety of anatomical, chemical and natural historical methodologies on the continent which were taught by men for whom observational diligence trumped hypothetic speculation. His education was not exceptional, as comparison with other physicians like Andrew Balfour and Martin Lister shows who, while not at Leiden, had benefitted from the medical marketplace of intra- and extramural teaching at Paris and Montpelier. By the end of his career, Sibbald felt that the persona he had cultivated, that of a naturalist-physician was under threat, and he sought to connect with men like Lister and Sloane who he saw as embodying similar virtues. However, as the next chapter will show, for Sibbald natural history was not only a modern method that supported medicine, it was the moral foundation for human conduct.

[137] Robert Sibbald to Hans Sloane, 26 Feb 1707, EUL MS Dc 8.35, f. 49.

Chapter III – Stoic Natural History, Robert Leighton, the *Scotia Illustrata* and Scotland's Αὐτάρκεια

During his training in France and the Low Countries, Sibbald had not only gained an understanding of medicine that emphasised natural history; he also came into contact with people for whom medicine was closely connected with a humanist mode of scholarship, like the bibliophiles Adolph Vorstius, Guy Patin and François Cureau de La Chambre.[1] Via these people, who not only knew the ancient medical authorities but also studied, edited and published ancient philosophical texts, Sibbald became familiar with a natural and moral philosophical tradition that he had already encountered during his undergraduate studies at Edinburgh: Stoicism. The use of Seneca's *Naturales Quaestiones* in his work, particularly the *Scotia Illustrata* (1684), gave Sibbald not only a moral anchor for the primacy of natural history, it also informed his understanding of the physical shape of the world and the workings of the cosmos. Sibbald placed particular emphasis on local natural history and employed Stoic cosmological ideas as well as the philosophical concept of *αὐτάρκεια* [*autarkeia*] in his writing in a way that does not suggest a commitment to unalloyed Baconian improvement. Unusually, Sibbald placed Seneca prominently alongside the medical authorities of Hippocrates and Galen, and he used the Roman philosopher's ideas on medicine, moral and natural philosophy, using concepts such as indigeneity, luxury, exoticism, and the relationship between microcosm and macrocosm. Indeed, Sibbald's fondness for Seneca was noted by detractors like Pitcairne who mocked Sibbald's use of the Roman philosopher "with references to whom swells your futile work of so many years."[2]

This chapter will first identify Sibbald's mentor and teacher, the Edinburgh principal Robert Leighton (1611–1684), as an important and underappreciated contributor to Sibbald's Stoic ideas. In the second part of this chapter, the influence of Seneca's ethics on the *Scotia Illustrata* will be examined. This is followed by an examination of Stoic natural philosophy in Sibbald's work. The last part of this chapter concerns a concept which had deep roots in classical philosophical ideas: the notion of an economically self-sufficient

[1] On earlier medical humanism, see Hiro Hirai, *Medical Humanism and Natural Philosophy: Renaissance Debates on Matter, Life and the Soul* (Leiden: Brill, 2011).
[2] Archibald Pitcairne, *The Latin Poems*, trans. John MacQueen and Winnifred MacQueen (Tempe, AZ: Van Gorcum, 2009), 148-9, on the timing of the poem, 361.

Scotland. Sibbald's notion of *autarkeia* utilised continental medical ideas of self-sufficiency but came under threat by the Scottish economic realities of the late 1690s.

3.1 Stoicism and Robert Leighton

Authors who have been placed in the Stoic tradition like Cicero, Epictetus and Seneca had a considerable readership in early modern Europe, particularly after they had been Christianised through the work of the Flemish Catholic scholar Justus Lipsius (1547–1606) into the form which has been given the name neo-Stoicism.[3] Historians have identified the influence of Stoic ideas on early modern political, literary and scientific culture.[4] However, there have been interventions in the recent historiography that question the extent to which neo-Stoic concepts such as self-disciplining and *constantia* shaped political culture, and that criticise accounts of a seventeenth-century science marked by politeness, restraint and discipline.[5] These Stoic ethical values were not the only ones that had an impact on early modern science, as Sibbald's use of Seneca's *Naturales Quaestiones* will show.

Part of the difficulty in assessing how influential Stoicism was lies in the fact that, especially in the way it was expressed in the Christianised post-Lipsian fashion, it was not a clearly defined philosophy but rather a flexible construct onto which early modern thinkers could project their intellectual preferences. William Bouwsma has rightly alerted to the difficulties in finding a definition of Renaissance Stoicism, within the eclectic nature of the humanist enterprise, and has noted that Seneca and Cicero, the main sources of Renaissance Stoic thought, had borrowed extensively from non-Stoic sources.[6] Indeed, as Peter Barker put it, if "a Stoic is someone who adhered exclusively to the doctrines of the Greek Stoics, then some of the best Latin sources, Cicero and Seneca, cannot be simply

---

[3] The considerable influence of Lipsius has prompted Adrianna McCrea to offer the concept of a "Lipsian paradigm," against which to measure English political humanist writers: Adriana McCrea, *Constant Minds: Political Virtue and the Lipsian Paradigm in England, 1584-1650* (Toronto: University of Toronto Press, 1997), xx. On Lipsius' Stoic physics, see *Justus Lipsius and Natural Philosophy*, ed. Hiro Hirai and Jan Papy (Brussels: Royal Academy of Belgium, 2011).

[4] Important studies of neo-Stoic thought outwith Scotland include those by Reid Barbour, *English Epicures and Stoics: Ancient Legacies in Early Stuart Culture* (Amherst: University of Massachusetts Press, 1998) and Gerhard Oestreich, *Neostoicism and the Early Modern State*, trans. David McLintock (Cambridge: University Press, 1982).

[5] Vera Keller, *The Interlopers* (Baltimore: Johns Hopkins University Press, 2023), 24-30.

[6] William J. Bouwsma, "The Two Faces of Humanism: Stoicism and Augustinianism in Renaissance Thought," in *A Usable Past: Essays in European Cultural History* (Berkeley: University of California Press, 1990), 22-23.

classified as members of that school."[7] Dmitri Levitin has rightly made the useful distinction between the presence of a strand of Hellenistic philosophy in early modern Europe – for instance Epicureanism – and the expression of attitudes to particular philosophers, in this case Epicurus.[8] Notwithstanding this useful caveat, many seventeenth-century writers did think of Seneca, Cicero or Epictetus as belonging to a coherent Stoic school, including Sibbald who commented that, on his return from France, he "read Seneca, and Epictetus and some other of the stoicks."[9]

Within Scotland, scholars have examined the influence of Stoic ideas on literature, religion and politics in the sixteenth- and seventeenth centuries.[10] Literary scholarship has shown the influence of Seneca on the dramatic works of the sixteenth-century philosopher George Buchanan (1506–1582).[11] Alexander Broadie has examined the critical engagement of the Scottish Calvinist James Dundas (c.1620–1679) with Descartes' reading of Seneca's moral philosophy.[12] Dundas, a contemporary of Sibbald, thought that the necessity of divine grace made it impossible to fully accept Seneca's assertion that human happiness can be achieved by contentment alone.[13] David Allan has traced the impact of neo-Stoic thinking on Scottish politics and religion and has shown that among the Scottish elite, it often appeared in an eclectic fashion together with neo-Platonist and mystic influences.[14] Religious and literary figures striving to follow a neo-Stoic life of "moderation, toleration, reason and eirenicism" like Robert Leighton, Gilbert Burnet, and George Mackenzie of Rosehaugh were particularly interested in a practical neo-Stoicism, despite their apparent difficulties in being able to

---

[7] Peter Barker, "Stoic Contributions to Early Modern Science," in *Atoms, Pneuma, and Tranquillity*, ed. Margaret J. Osler (Cambridge: Cambridge University Press, 1991), 137.
[8] Levitin, *Ancient Wisdom*, 4.
[9] Sibbald, *Memoirs*, 61.
[10] Particularly important are the works of David Allan, *Philosophy and Politics in Later Stuart Scotland: Neo-Stoicism, Culture, and Ideology in an Age of Crisis, 1540-1690* (East Linton: Tuckwell Press, 2000). Another study of Scottish neo-Stoicism on a contemporary of Sibbald and Leighton is Alexander Broadie, "James Dundas on Seneca, Descartes and the Fall," in *Neo-Latin Literature and Literary Culture in Early Modern Scotland,* ed. Steven J. Reid and David McOmish (Brill: Leiden, 2016), 247-63. A case study of an early instance of Seneca can be found in Theo van Heijnsbergen, "The Renaissance Uses of a Medieval Seneca: Murder, Stoicism, and Gender in the Marginalia of Glasgow Hunter 297," *Studies in Scottish Literature* 39, no. 1 (2013): 55-81. On Cicero and Seneca in Scotland after 1720, see M. A. Stewart, "The Stoic Legacy in the Early Scottish Enlightenment," in *Atoms, Pneuma, and Tranquillity: Epicurean and Stoic Themes in European Thought*, ed. Margaret J. Osler (Cambridge: Cambridge University Press, 1991), 273-96.
[11] Roger P.H. Green, "The Extent of Senecan Influence in the Dramas of George Buchanan," *Humanistica Lovaniensia* 63 (2014): 107-36.
[12] Broadie, "James Dundas," 247-63.
[13] Broadie, "James Dundas," 256-8.
[14] Allan, *Philosophy and Politics*, 181.

apply in practice balance of a contemplative and active life with their own perceived roles in a country riven by religious and political factionalism.[15]

There has been only scant scholarship that assessed the extent to which Stoic ethics and natural philosophy made it into Scottish universities.[16] In Sibbald's case, however, it was at the common hall of the town college at Edinburgh where he probably first encountered it. During Sibbald's time at the college, the principal and professor of divinity, Robert Leighton (c.1612–1684) gave lectures in Latin to his undergraduate students on theological matters ranging from the nature of happiness to the creation of the world and man.[17] Leighton was a moderate who sought to overcome confessional differences between Presbyterians and Episcopalians. Sibbald judged him a "learned and devout man," and stated that his influence caused him to "affect charity for all good men of any persuasion."[18] After his principalship, Leighton was appointed bishop of Dunblane in 1661 and Glasgow in 1670, and these appointments were the cause of personal anxieties. As David Allan has analysed, Leighton's self-examination in accepting and then relinquishing these offices was conducted with the full framework and vocabulary of Stoic philosophy.[19] Leighton's choice between Ciceronian public duty and retreat into contemplative study was not made easier by the concern of being accused of "phantastick inconstancy," in violation of the Senecan virtue of *constantia*.[20]

In his capacity as a teacher, Leighton was "enthusiastically recommending" Seneca to his undergraduate students, and the Roman philosopher and statesman was Leighton's most-cited author.[21] Leighton was an avid proponent of continental neo-classical learning, highly competent in Greek and Latin, and a frequent traveller to England and the Cromwellian court. [22] Using Leighton's book collection, Allan concluded that he was "an enthralled

---

[15] Allan, *Philosophy and Politics*, 218.
[16] Allan, *Philosophy and Politics*, 20-4.
[17] These were printed as Robert Leighton, *Prælectiones Theologicæ, in Auditorio publico Academiæ Edinburgenæ*, ed. J. Fall (London: Sam Keble, 1693) and are available in translation as Robert Leighton, *The Whole Works (as yet Recovered) of the Most Reverend Father in God…*, trans. William West (London: Longmans, Green, and Co., 1870).
[18] Sibbald, *Memoirs*, 55-6.
[19] David Allan, "Reconciliation and Retirement in the Restoration Scottish Church: The Neo-Stoicism of Robert Leighton," *The Journal of Ecclesiastical History* 50, no. 2 (1999): 251-78.
[20] Allan, "Reconciliation and Retirement," 272.
[21] Allan, *Philosophy and Politics*, 184.
[22] Allan, *Philosophy and Politics*, 178.

student of Stoicism in both its classical and Renaissance manifestations," and his library contained works of the Epictetus, Cicero, Marcus Aurelius, Seneca, and Lipsius.[23] Epicureanism and corpuscularian atomism, by contrast, were often attacked by Leighton, who called Epicurus "this minute philosopher [who had] borrowed from the ravings of Democritus and Leucippus."[24] Leighton's lectures were published, under the title of *Praelectiones Theologicae* in 1693 by Sibbald's close friend and correspondent James Fall (1647–1711), principal of Glasgow University.[25] Sibbald had a copy of these lectures in his library and, when Fall remarked in the preface, that there would be many still alive who had attended Leighton's lectures in the 1650s, Sibbald would have been one of the people he had in mind.[26] In his lectures, Leighton showed considerable interest in the Stoic themes of natural divinity and happiness, and in the words addressed to the students of the college, he made liberal use of his own extensive library of Stoic writings.[27]

Leighton influenced Sibbald not only during his undergraduate studies but probably remained within Sibbald's orbit after his return from the continent since Sibbald and Leighton shared networks of patronage that outlasted Leighton's death in 1684.[28] Leighton likely encouraged Sibbald's six-month stint of studying divinity in 1659, to the delight of Sibbald's mother.[29] However, Leighton's struggle to cope with the fractious nature of pre-Restoration Scottish religious and political realities also caused Sibbald to abandon this study and instead to pursue "a quiet lyfe, wherein I might not be ingaged in factions of Church or State."[30]

Leighton used Stoic arguments in his lectures to illustrate various theological points, including the distinction between creation and creator, the contemplating of creation and the notion of self-restraint. In one of these lectures, entitled "On the being of God," Leighton countered the Epicurean notion that nature might exist without God. Dismissing

---

[23] Allan, *Philosophy and Politics*, 179-180.
[24] Leighton, *The Whole Works*, 162.
[25] Sibbald, *Memoirs*, 63-4.
[26] Robert Sibbald, *Bibliotheca Sibbaldiana; or, a Catalogue of Curious and Valuable Books* (Edinburgh, 1722), 8. Leighton, Leighton, *The Whole Works*, Preface, xii.
[27] Allan, "Reconciliation and Retirement."
[28] See Chapter VII in this thesis.
[29] Sibbald, *Memoirs*, 55.
[30] Sibbald, *Memoirs*, 55-6.

Lucretius' "very ill-advised" praise of Epicurus, Leighton explained that Epicurus "fancied he had found out an effectual way to banish all religion from the minds of men."[31] Using language that evoked Stoic notions of self-enslavement, Leighton claimed that "in no age have there been wanting brutish souls, abject slaves of their bodies and sensual appetites, who would wish these opinions to be true."[32] However, Leighton stressed that men need only consider the "beautiful order of the Universe, and the mutual relation that subsists between all its parts" to see the evidence of the creator.[33] Lest this was mistaken for deism, Leighton clarified that it was necessary to maintain the agency of a creator God: "In vain would anyone endeavour to evade the force of our argument, by substituting *Nature* in the place of GOD, as the first cause of this beautiful order, the beginning of this connected chain of things." [34] But, Leighton continued, "manifold Nature is quite void of reason, and could never be the cause of that beautiful order and harmony which is everywhere conspicuous throughout the whole system."[35] This passive, created nature needed to be distinguished from the "universal and intelligent Nature, disposing and ordering everything to advantage [which is] only another name for GOD; of whom it may be said, in a sacred sense, that He, as an infinite Nature and Mind, pervades and fills all His works."[36] Here, Leighton employed Seneca, citing from *De beneficiis*: "'Whithersoever you turn yourself, you see GOD meeting you; nothing excludes His presence; He fills all His works. Therefore, it is in vain for thee, most ungrateful of men, to say thou art not indebted to GOD, but to Nature, because they are, in fact, the same.'"[37]

Using the flexible tool of neo-Stoic philosophy to counter both atheism and pantheism was a common strategy in the middle of the seventeenth century. [38] In England, John Wilkins and Robert Boyle advanced a natural theology that sought to use reason to demonstrate the divine power behind a created universe.[39] The physico-theology of John Ray's *Wisdom of God Manifested in the Works of Creation* (1691) expanded this arsenal against pantheism

---

[31] Leighton, *The Whole Works*, 118.
[32] *Ibid*.
[33] Leighton, *The Whole Works*, 123.
[34] Leighton, *The Whole Works*, 125.
[35] *Ibid*.
[36] *Ibid*.
[37] *Ibid*. Seneca's *De beneficiis*, 4.8.
[38] Scott Mandelbrote, "The Uses of Natural Theology in Seventeenth-Century England," *Science in Context* 20, no. 3 (September 2007): 451-80.
[39] *Ibid.*

and atheism by employing knowledge about animals and plants.[40] Sibbald combined both Leighton's Stoic language and Ray's emphasis on natural knowledge. On the opening of the town college museum of *naturalia* and *artificialia* in 1697, he noted that works of human ingenuity were the result of the "observation of the works of Nature and judicious reflections upon them."[41] Like Leighton, Sibbald then used Seneca to distance himself from pantheism: "now when I speake of Nature I hope none will Mistake me, since with the philosopher Seneca I only change the Name of God Natura saith he e qua Nata sunt omnia, and I mean by Nature that Art by which God made preserves and Governeth all the Beings in the World, especially those which fall under the discovery of our senses."[42] Forty years after Leighton had given his lectures, Sibbald employed Seneca for the same purpose, but for a very different occasion.

According to Leighton, divine power could be recognised by a process of contemplation, which again borrowed from Stoic concepts. The only method for recognising this was contemplation with the mind's eye, which was "a powerful impulse […] that we may discover the one chief good, and attain to the enjoyment of it."[43] In his thoughts on human felicity, happiness came from recognising the beauty that lay in a creation in which "all things in it are disposed in the most excellent order, and every part of it is intended for some noble and suitable end."[44] In another lecture, concerning creation, Leighton began by stating that the visible world was given form by the contemplation of God.[45] Contemplation of that world, according to Leighton, could bring the human mind back to God, and he likened the contemplative process to the ascending and descending of the pious soul between heaven and earth, as the angels did on Jacob's ladder.[46] What was necessary for this contemplative process was an "inward eye pure and bright" that met the outward eye to discern the "clear and legible" characters of God in his creation.[47] Leighton emphasised

---

[40] Brian W. Ogilvie, "Natural History, Ethics, and Physico-Theology," in *Historia: Empiricism and Erudition in Early Modern Europe*, ed. Gianna Pomata and Nancy G. Siraisi (Cambridge, MA: MIT Press, 2005), 96.

[41] EUL MS La III 535, f1. On the museum, see Chapter VI.

[42] EUL MS La III 535, f1. From Seneca, *Naturales Quaestiones*, 2.45. The full sentence is: "*Vis illum naturam vocare, non peccabis; hic est ex quo nata sunt omnia, cuius spiritu vivimus*." Translation: Thomas H. Corcoran. LCL 450, 172-3: "You wish to call him Nature? You will not be mistaken. It is he from whom all things are naturally born, and we have life from his breath."

[43] Leighton, *The Whole Works*, 91.

[44] *Ibid.*

[45] Leighton, *The Whole Works*, 160.

[46] *Ibid*.

[47] *Ibid*.

that the idea that the world was "made directly and immediately for man," was "the doctrine not only of the Stoics," but also of Aristotle.[48] Contemplation of this world should be immediate, and not through the pictures and images which were sent to "the ignorant and unlearned," and Leighton admonished his listeners to "consider the heavens, at times the sea and land, the plants and animals and all that is therein, and oftentimes our own selves: and in all these, but most of all in ourselves, let us contemplate GOD."[49]

The Stoics provided not only the imperative to contemplate divinity in nature but also provided guidance as to where to direct the contemplative gaze. Citing Seneca, Leighton criticised those who only thought about nature's wonders: "all the wonders of creation are daily around us; but, because they are constantly before our eyes, they never strike our minds, so natural is it for us to admire what is new, rather than what is great."[50] Anticipating that some of his students may soon be travelling abroad, Leighton reminded them of the words of the Stoic philosopher Epictetus, which he admired as "divine, and full of admirable piety." [51] Epictetus had admonished those who travelled to Mount Olympus to see the Phidias' statue of Jupiter, and who had "no desire to contemplate and understand those works which may be seen without travelling at all."[52] As will be seen below, Sibbald echoed these sentiments in his *Scotia Illustrata*, which emphasised the looking at nature which was close at hand over unrestrained travel.

Self-restraint, another Stoic theme, cropped up in Leighton's lectures as well. Leighton admonished that, while it was necessary to supply the body with everything it needs, it was also necessary to constrain desires and ambitions "to chase the wind and pursue fleeting and fallacious hopes," and to recognise that there is something greater.[53] Citing from Seneca's *Naturales Quaestiones*, Leighton asked: "Can it be thought, that man was born merely to eat and drink, or gratify the other appetites of a body which he has in common with the beasts?"[54] Elsewhere, Seneca had provided the answer: "'I am greater,' says the Roman philosopher Seneca, 'and born to greater ends, than to become the slave of my

[48] Leighton, *The Whole Works*, 166.
[49] Leighton, *The Whole Works*, 167-8.
[50] Leighton, *The Whole Works*, 168, citing from Seneca, *Naturales Quaestiones*, 7, 1.
[51] Leighton, *The Whole Works*, 176.
[52] *Ibid.*
[53] Leighton, *The Whole Works*, 92.
[54] Leighton, *The Whole Works*, 92, citing from Seneca, *Naturales Quaestiones*, 1.1.

body.'"[55]

How much Leighton's lectures directly influenced Sibbald's turn to the Stoics is difficult to assess. As we have seen, Sibbald's undergraduate studies included a diverse range of influences, and he seems to have been a voracious reader, spending any available money on buying books which were the foundation of his sizable library.[56] From his fellow students, Sibbald earned the nickname "Diogenes in Dolio" (referring to Diogenes the Cynic), apparently for an aversion to "playes and divertissements the other students followed."[57] During his studies on the continent, Sibbald came into contact with humanist philologists like Adolph Vorstius in Leiden – where Lipsius had taught from 1579 to 1590 – and Guy Patin in Paris, who were enthusiastically exchanging the latest editions of Seneca and made use of young travelling scholars like Sibbald to carry them between their cities.[58]

It was likely a combination of the Stoic ideas expressed by Leighton, encounters with scholars at the centres of neo-Stoic humanist scholarship, and personal family losses, such as his father in 1660 and his younger brother George two years later, that made Sibbald turn to studying Stoic authors "because of yr contempt of riches and honours."[59] He abandoned his youthful world-averse cynicism, and thought to "passe quietly throughout the world, and content myself with a moderate fortune."[60]

However, like his teacher Leighton, Sibbald's engagement in public life was neither quiet nor did it eschew honours. Sibbald campaigned for the establishment of the Royal College of Physicians in 1681 and was knighted shortly after by the Duke of York, much "to our surprisall."[61] Following this, he was appointed Royal Physician, Geographer Royal, and president of the Royal College of Physicians of Edinburgh and professor of medicine in 1684. This rather fast rise to prominence and the securing of courtly patronage of James Drummond (1648–1716), the Earl of Perth and of the future king James VII and II did, according to Sibbald, "occasion much envy to me, for that I was taken notice of at the

---

[55] Leighton, *The Whole Works*, 92, also footnote [*]. Leighton cites from Seneca, *Epistle* 65.
[56] Sibbald, *Memoirs*, 55.
[57] *Ibid*.
[58] See page 15.
[59] Sibbald, *Memoirs*, 61.
[60] *Ibid.*
[61] Sibbald, *Memoirs*, 82.

Court."[62] Sibbald became Perth's physician, but claimed that this was "only for the good of the Colledge of Physicians, and […] very little for the bettering of my fortune by it."[63]

Sibbald's *Memoirs*, although private, appear as an attempt at exoneration of the charge that it was the pursuit of money or fame that had caused his conversion in 1685 to Catholicism, the religion of his patron. Sibbald stated the conversion was "the difficultest part" of his life, and was prompted by the dislike of some of the English clergy, although he professed that he had "never had met with any of the Romish Clergie, nor spoken with any upon yr doctrin."[64] Sibbald also claimed ignorance in basic matters of Catholic doctrine and that he had "no other opinion of the presence in the sacrament, and of meat," than he had gained from reading the *Divinae fidei analysis* (1652) by the Sorbonne Professor of Divinity and student of Thomas White, Henry Holden (1596–1662).[65] According to Sibbald, it was his reading of the "Life" of the Mexican hermit Gregory Lopez (1542–1596) by Francisco de Losa and the writings of the Jesuit mystic Juan de Ávila (1499-1569) which instilled in him an admiration of the pious and austere life of these Catholic saints.[66] Sibbald admired the devotion and charity of some Catholic priests, although they were "not of any great learning, knowing for the most parte only the scholastic philosophie and theologie."[67] Whether this account of Sibbald's conversion, which emphasised an esteem of unlearned spirituality can be taken at face value, or whether his conversion was one of political calculation is hard to establish for certain. What is sure, however, is that it had a traumatic effect on Sibbald's life.

Sibbald's conversion not only caused a public uproar which caused him to flee to London where he returned to the Episcopalian church. It also meant a loss of face which was compounded by the loss of patronage following the revolution of 1687/8. This change of fortunes meant a reassessment of his ethical and professional priorities, and from that time, Sibbald acted much less publicly. This period also saw Sibbald losing three of his daughters

---

[62] Sibbald, *Memoirs*, 83.
[63] Sibbald, *Memoirs*, 86.
[64] Sibbald, *Memoirs*, 87.
[65] Sibbald, *Memoirs*, 93.
[66] Sibbald, *Memoirs*, 87. The 1638 English edition of de Losa's *Life of Gregory Lopez* was dedicated to Kenelm Digby and might have been translated by Thomas White, both of which Sibbald read during his undergraduate studies, Lia Nunes, "The Anti-Biography of Gregorio Lopez: Deconstructing a Sixteenth-Century Vita" (PhD Thesis, University of Groningen, 2020), 87-8.
[67] Sibbald, *Memoirs*, 88-9.

in infancy between 1685 and 1692.[68] Large sections of his *Memoirs* recount these and other tragedies which befell him, including being nearly blown up by five barrels of powder, a fire at his lodgings, being waylaid by highwaymen and becoming ill during his flight to London and being struck between the eyes with a golf club on Leith Links by a teenage boy.[69] These tragedies and loss of status following his conversion might have occasioned in Sibbald a return to Stoic values, although as the *Scotia Illustrata* shows, Stoic ideas guided not only his moral but also his natural philosophical thoughts.

3.2 The *Scotia Illustrata* (1684) and natural history as a Stoic imperative

Robert Sibbald's *Scotia Illustrata, sive prodromus historiae naturalis* (1694) not only expanded on those Stoic values which had been propagated in Leighton's lectures, it also made liberal use of Stoic cosmology and used Stoic ethics as an imperative for the study of natural history.[70] The *Scotia Illustrata* resulted from Sibbald's appointment as Geographer Royal for Scotland in September 1682, and the warrant to this appointment was prominently prefaced to the large folio volume which was with – according to Sibbald insufficient – royal financial support and by the employment of Dutch printing knowledge.[71] Sibbald took seriously the opportunity this project gave him to raise his profile in natural history as well as his social standing. He had 1,200 copies of the work printed which were to use the same typeset and paper that was used for Scottish acts of parliament, and he was involved in the design of the work, including its 22 sheets of engravings, and remarked that he had "much practise, and was employed with the best of the kingdome."[72] The royal warrant had tasked Sibbald with the writing of a geographical description of Scotland which

[68] Sibbald *Memoirs*, 97. Archibald Pitcairne, *The Best of Our Owne Letters of Archibald Pitcairne 1652-1713* (Edinburgh: Saorsa Books, 1979), 20-1.
[69] Sibbald, *Memoirs*, 81, 83, 93, 97-9.
[70] The full title is Robert Sibbald*, Scotia illustrata sive, Prodromus historiae naturalis: in quo regionis natura, incolarum ingenia & mores, morbi iisque medendi methodus, & medicina indigena accurate explicantur* (Edinburgh: James Kniblo, Josua van Solingen & James Colmar, 1684). The titles *Scotia Illustrata* and *Prodromus* will be used interchangeably hereafter.
[71] Esther Mijers, "Scotland, the Dutch Republic and the Union: Commerce and Cosmopolitanism," in *Jacobitism, Enlightenment and Empire, 1680-1820* (London: Routledge, 2015), 98; Sibbald complained about the cost of the project which incurred significant personal expense in his *Memoirs*, 74.
[72] Sibbald, *Memoirs*, 82. The *Scotia Illustrata* was one of a few books after 1610, where the printing priviledges had been licensed by Privy Seal, instead of an Act by the Privy Council, which showed particular royal interest, Alastair J. Mann, *The Scottish Book Trade 1500-1720* (Edinburgh: Birlinn, 2000), 153-4.

was to include both civil geography and natural history.[73] The latter should, according to the royal instructions, serve to "preserve the bond of confederacy of the country" and "to preserve its riches which were in danger of being disbursed abroad."[74] Despite the time and financial cost that Sibbald expended to publish the work, he stressed that it was only a *Prodromus,* or forerunner. This referred both to the fact that it only contained natural, and not civil history, as well as to the idea that Sibbald merely provided the beginning of an account of Scotland's plants, animals, underground productions, as well as the diseases and their cures, a point which he would point out to his detractors 25 years later.[75]

Despite the precursory character of the book, Sibbald presented the *Scotia Illustrata* as the culmination of twenty years' work, the "Opus viginti annorum," as he termed it on the title page. Sibbald's methodology was to collect observations about Scottish nature through contemporary enquiries as well as works of ancient and more recent civil and natural history. By his own account, Sibbald saw himself emulating Pliny the Elder and collected natural particulars in a common-place book of *adversaria* which formed the basis for the *Scotia Illustrata.*[76] As Sibbald explained, whatever Pliny read in books that pertained to the history of the world that he was writing, he excerpted and arranged in his *adversaria* under appropriate headings.[77] Sibbald followed this same method and he stated that he expended much effort in noting others' observations, as well as those that he collected from his travels through Scotland, and which had not been written down by others.[78] How much Sibbald's account of Scottish nature rested on the observations of others and how much on his own experience is hard to establish, not least due to Sibbald's inconsistent attribution of

---

[73] On Sibbald's geography, see Withers, *Geography, Science and National Identity*, 72-87.

[74] "...quae adeo neccessariae sunt ad Ligeorum nostrorum conservationem. Animadvertentes etiam futurum, ut progressu temporis tenderet ad dictum nostrum Regnum ditandum, conservando in eo pecuniam quae foras emititur...," *Scotia Illustrata*, n.p.

[75] See section 4.3.

[76] On the use of the term *adversaria*, for a common-place book see Yeo, *Notebooks, English Virtuosi, and Early Modern Science*, 271 fn88.

[77] "Ille enim quicquid in libris legerat, quod ad historiam mundi quam adornabat faceret, excerpebat, et in adversariis suis sub certis titulis digestum collocabat," Sibbald, *Vindiciae,* 5.

[78] "Ita & ego in meis adversariis (cujusmodi plura penes ma, a me collecta habeo) quicquid in lectione scriptorum qui de historia naturali scripserunt, occurrebat, quod ad historiam Scotiae naturalem illustrandum facere potuit; quicquid etiam a me observatum fuit dum per postras regiones peregrinarer, vel a viris doctis aut relatum mihi aut ad ne scriptam fuerat, sub suis titulis in adversariis inserui," Sibbald, *Vindiciae*, 5.

evidence.[79] The original notes for the *Scotia Illustrata* do not survive, perhaps having been destroyed, or stolen, during the fire in Sibbald's lodgings in 1684.[80] Another notebook, compiled for a planned successor volume to the *Scotia Illustrata*, shows that Sibbald continued the common-placing practice beyond the 1690s, but it is difficult to disentangle personal observations from information gained from correspondence or other works.[81] As noted in the thesis introduction, the historiography presents Sibbald as almost purely a desk-based scholar and largely discounts Sibbald's claims of direct observation.[82] While the exact extent of Sibbald's empirical observation is hard to establish, a large part of his natural history was probably conducted at home rather than in the field, and according to Sibbald's own *Memoirs* he retreated to his country estate of the Kipps "yr to injoy myself in the solitude… and prosecute ye studie of the natural history of the country with more conveniency."[83]

To collect information, Sibbald distributed lists of queries, following the methods used in the compilation of local natural histories by Royal Society men like Robert Plot (*The Natural History of Oxford-shire*, 1677), and Robert Boyle who gave a direction of queries in his "General Heads for a Natural History of a Countrey, Great or Small" (1666), which was mirrored in some of the emphasis of the account of Scotland that Sibbald provided in the first book of the *Scotia Illustrata*.[84] Sibbald also cited Christopher Merret's *Pinax Rerum Naturalium Britannicarum* (1666), as the model of a natural history which was accumulative but did not spend undue time on establishing the veracity of factual information.[85] Like Sibbald and Lister, Merret argued for the centrality of natural history in medicine, and as a member of the Royal Society, he placed useful experiential medical knowledge above

---

[79] Richard Yeo has shown the value of commonplace books like Sibbald's, as "ego-documents," "precisely because they reveal individual styles and preferences - in relation to chosen authors, topics, and quotations: format and detail of entries; and mode of arrangement." Yeo, *Notebooks, English Virtuosi, and Early Modern Science*, 22-3.
[80] Sibbald, *Memoirs*, 83.
[81] NLS MS.33.5.19.
[82] See page 11.
[83] Sibbald, *Memoirs*, 70.
[84] Alix Cooper, *Inventing the Indigenous: Local Knowledge and Natural History in Early Modern Europe* (Cambridge: Cambridge University Press, 2007), 116-131. Robert Boyle, "General Heads for a Natural History of a Countrey, Great or Small, Imparted Likewise by Mr. Boyle," *Philosophical Transactions* XI (1666): 186-89.
[85] Sibbald, *Vindiciae*, 5. On Merrett, see Aaron Mauck, "'By Merit Raised to That Bad Eminence': Christopher Merrett, Artisanal Knowledge, and Professional Reform in Restoration London," *Medical History* 56, no. 1 (2012): 26-47.

theoretical natural philosophy.[86] Merret's *Pinax* was for Sibbald the model of a natural history that sought to collect, rather than evaluate: "not that I should assert that all these things were true, but that, as a matter of fact, men who were curious about these things, might more easily inquire into the truth of those which are handed down among our writers: and I doubted a great many [such things] that were discovered and understood in our country."[87] However, Merret's work was not uncritically received by his Society peers including John Ray who called it a "bungling work."[88]

Unlike Merret's alphabetical list of plants, animals and *fossilia*, Sibbald's *Scotia Illustrata*, can be regarded as a text of "medical chorography;" and Sibbald made extensive use of ideas of environmental determinism, derived from Hippocrates, Galen, and Seneca.[89] A substantial part of Sibbald's work dealt with medical matters and with examining how locally prevalent diseases could be cured by locally derived medicine. This was also recognised by the reviewer of the work in the *Philosophical Transactions*, who noted that Sibbald "enjoyes in being the *Kings Geographer* and *Physitian* [in Scotland], but in [the *Prodromus*] he acts chiefly as the latter."[90] Following the Hippocratic corpus, Sibbald considered the relationship between the four elements and their influence on human health via the seasons, winds, food, water and other geographically contingent effects. With reference to the Hippocratic *Liber de Aere, Aquis, Locis*, Sibbald called the first book of the *Scotia Illustrata*, "*De Aere, Aquis, Locis & Incolis Scotiae.*"

While Sibbald derived ideas of environmental influence on human health from the Hippocratic corpus, it was Seneca who provided the moral imperative for the study of nature. Part of this reason was that it resonated with an elite Scottish readership who, like Robert Leighton, had long been versed in the philosophical vernacular of Stoic ideas.[91] However, more than mere rhetorical adornment, Sibbald's use of Seneca shows a deep

---

[86] Harold Cook, "Physick and Natural History in Seventeenth-Century England," in *Revolution and Continuity: Essays in the History and Philosophy of Early Modern Science*, ed. Peter Barker and Roger Ariew (Washington, DC: The Catholic University of America Press, 1991), 71.
[87] Sibbald, *Vindiciae*, 5: "[…]non quod vera haec omnia esse asseruerim, sed, ut pro re nata, viri harum rerum curiosi, facilius in veritatem inquirerent, eorum, quae apud scriptores nostros traduntur: plurimaque de quibus dubitabam, in nostra regione reperiri, deprehendi."
[88] Mauck, "'By Merit Raised to That Bad Eminence'," 29.
[89] Withers, *Geography, Science and National Identity*, 75.
[90] *Philosophical Transactions*, XVIII (1694), 795.
[91] Allen, *Philosophy and Politics*, 176-213.

commitment to Stoic values, which can be seen particularly in the preface of the *Scotia Illustrata*. Here, Sibbald used Seneca's works as a warning against the dangers of unrestrained travel, and as an ethical imperative for the study of nature, which could curb the excesses of an unrestrained curious mind.

Sibbald began his preface by citing a popular passage from Seneca's play *Medea*: "There will come an epoch late in time / when Ocean will loosen the bonds of the world / and the earth lie open in its vastness, / when Tethys will disclose new worlds."[92] This excerpt had been used by Columbus and has been deemed by one scholar as the most inspirational text for sixteenth-century European navigators.[93] However, unambiguous praise for the opportunities afforded by his age was not Sibbald's aim. For Sibbald, the discovery of new lands and the conduct of journeys abroad were as much a distraction as they were an opportunity. He continued that "even if we should spend all our time wandering the world, we still would not be able to comprehend all matters of nature," since "the earth is vast and nature is largely hidden in the depths of the seas, in the bowels of the earth and inaccessible forests."[94] Furthermore, according to Sibbald, "many things in nature are fleeting and escape our understanding, and we have no way of understanding anything except through our senses."[95]

This reflected Stoic anxieties about the usefulness of foreign travel, which had been the theme in Leighton's lectures, but also showed an emphasis on indigenous natural history.[96] For Sibbald and the Stoics, travel alone was morally unsatisfying, and an itinerant life was barren. Seneca had expressed this in his *Epistles*: "What pleasure is there in seeing new lands? Or in surveying cities and spots of interest? All your bustle is useless. Do you ask why such flight does not help you? It is because you flee along with yourself. You must lay aside

[92] *Scotia Illustrata*, Preface, n.p. Translation from Seneca the Younger, *Tragedies, Volume I*, trans. John Fitch, LCL 62 (Cambridge, MA: Harvard University Press, 2018), 375.
[93] Diskin Clay, "Columbus' Senecan Prophecy," *American Journal of Philology* vol 113, issue 4 (1992) 617.
[94] "si totum tempus nostrum in peregrinatione insumeremus, ne Mundo quidem peragrando, nedum rebus omnibus naturalibus comprehendendis, sufficere poterimus"… "Plurima mare gremio suo involvit; multa Tellus suis visceribus abscondit; varia inaccessibiles Sylvarum recessus tenant." Sibbald, *Scotia Illustrata*, Preface, n.p.
[95] "…nonnulla sensus nostros prae tenuitate effugiunt, & nulla nobis ad harum rerum intellectum, nisi per sensus, via." Sibbald, *Scotia Illustrata*, Preface, n.p.
[96] Cooper, *Inventing the Indigenous*, 40.

the burdens of the mind; until you do this, no place will satisfy you."[97] Sibbald – whose family resources had allowed him to study in the Low Countries and France – displayed an uneasy relationship with foreign travel and with those who dedicated their lives to it. After his return to Scotland, there is little evidence that Sibbald ventured much beyond central Scotland, excepting his enforced English exile following his Catholic conversion. Much of Sibbald's time was spent at Edinburgh, Fife or his family home at the Kipps, where he could enjoy himself in solitude.[98] Not only was travel unnecessary, Sibbald's own *Memoirs* served as a reminder of the dangers it posed to health. In them, Sibbald recalled how, during his journey south, he was waylaid by highwaymen, and how exposure to the cold, his stagecoach journey and the change of diet in England caused him to get rheumatic and ill with a cough.[99] Even a local ride in Fife in 1685 proved nearly disastrous when Sibbald's fall over a precipice near Dunfermline was only stopped by the keen senses of his horse, and Sibbald saw in this a "presage of the many dangers [which] befell me within a few montehs thereafter."[100]

For Sibbald, exposure to other countries and people could also be morally tainting. In his *Nuncius Scoto-Britannus* which preceded the *Scotia Illustrata*, Sibbald praised "the science of geography by which all the face of the World is exposed to us, and we can even sitting at home view the whole Earth and Seas, and much sooner pass through them in our studies, than Travellers can do by their Voyages; and so may, without the hazard of being infected by the vices of Forreiners, improve our minds and reap all other Advantages from them."[101] Sibbald emphasised this when he gave the following advice to the young laird William Bennet of Grubet in 1697: "after you have seen the world and understood the tempers and inclinations of men ther customes and maners and way of Living," Grubet should consider the works of nature and art which would allow him to improve his estate and "beside the

---

[97] Seneca the Younger, *Epistles*, trans. Richard M. Gummere, LCL 75 (Cambridge, MA: Harvard University Press, 1917), Epistle 28, 199.
[98] Sibbald, *Memoirs*, 70.
[99] Sibbald, *Memoirs*, 93.
[100] Sibbald, *Memoirs*, 98
[101] Quoted in Withers, *Geography, Science, and National Identity*, 72. Robert Sibbald, *Nuncius Scoto-Britannus, sive, Admonitio de Atlante Scotico seu descriptione Scotiae antiquae et modernae* (Edinburgh: David Lindsay, M. James Kniblo, Josua Solingen & Johann Colmar, 1683), 3-4.

incredible pleasure the studie will affoord you to say nothing that this will keep yow from evill company and the bad habits may be contracted by it."[102]

Not only geography, but local institutions such as learned academies, medical schools, libraries and museums could mitigate the need for foreign travel and could provide spaces for a safer engagement with nature. Through his institution-building work, Sibbald was engaged in establishing all of these. [103] In the advertisement for his 1706 course on natural history and medicine, Sibbald claimed that Edinburgh was Scotland's "most suitable town" for medical education, not only due to it being "very healthy on account of its position on a hill," but because it possessed libraries, gardens and museums which would lessen the necessity for foreign travel, although he did not mention his own involvement in their foundation.[104] Moreover, there were many physicians, surgeons and apothecaries in the city, as well as public dissections and chemical demonstrations, which meant that "nothing may be desired in this town which might be useful for furthering medical studies."[105] Sibbald conceded that some travel was still necessary, and the "deplorable" lack of a hospital and the infrequency of dissections performed in Scotland meant that medical students could "remedy these defects only by travel."[106] Since Sibbald followed the idea that disease was geographically bound, medical travel could furthermore teach students about foreign pathologies, and it would also allow them to be judged worthy by other physicians.[107] Sibbald also recognised the value of travel in the education of a young gentleman and, writing in the foreword to Andrew Balfour's posthumous *Letters written to a friend*, conceded that: "it is needless to show the many advantages may be had from Travelling, since all are convinced of it."[108]

Sibbald's reluctance to travel would be a main point of attack by his detractors who claimed that his reluctance to leave his country estate had prevented him from seeing and understanding Scottish nature *in situ*.[109] To defend his observational credentials, Sibbald

---

[102] Robert Sibbald to William Bennet, 12 July 1697, NRS GD 205/34/4, f1.
[103] Emerson, "Sir Robert Sibbald, Kt," 41-72. See Chapter VI.
[104] Cunningham, "Sir Robert Sibbald and Medical Education," 150.
[105] *Ibid.*, 150.
[106] *Ibid.,* 152.
[107] *Ibid.*
[108] Balfour, *Letters*, i.
[109] See Section 4.2.

countered that upon his return from France and the Low Countries, he had wandered his native country's lowlands and highlands, the South and the North.[110] Indeed, it was his active life, and his weekly travels which had led to an account of Scotland that was less accurate and exact than he would have liked to present, implying that more time spent at his desk would have increased, not decreased the meticulousness of his observations.[111]

In addition to warning of the moral and physical dangers of travel, Sibbald used Seneca to explain that the study of nature was a way to tame the curious mind and direct it to the more worthwhile pursuit of studying God's creation. Sibbald was somewhat more generous than Leighton had been in granting the value of curiosity, which Sibbald saw sanctioned by God.[112] Citing from Seneca's *De Otio Sapientis*, Sibbald wrote: "Nature has bestowed upon us an inquisitive disposition, and being well aware of her own skill and beauty, has begotten us to be spectators of her mighty array, since she would lose the fruit of her labour if her works, so vast, so glorious, so artfully contrived, so bright and so beautiful in more ways than one, were displayed to a lonely solitude."[113] This citation had also been placed prominently by Sibbald on the title page of the *Nuncius Scoto-Britannus*, published in 1683.[114] In the *Scotia Illustrata*, Sibbald also cited the Spanish humanist physician Francisco Vallés (1524–1592), who had tried to reconcile the Bible with Hippocratic-Galenic medicine and Aristotelian physics.[115] According to Valles, the study of natural philosophy and the desire to know the causes of things was "ingrained in men, and does not stem from the same vicious desires that make them strive for wicked things, but rather comes directly from God, the father and creator of all things natural."[116]

---

[110] "non solum mediterranea Scotiae sed & quasdam ex Alpibus, cum Australibus tum & Borealibus, peragravi." Sibbald, *Vindiciae*, 10.
[111] "A me enim vitam activam agente, & alternis fere septimanis per varia loca excurrente non expectandum est Opus ad Scholae ἀκρίβεια accuratum & exactum," *Scotia Illustata*, Preface, n.p.
[112] See page 48. On the changing status of curiosity in early modern Europe, see Lorraine Daston and Katharine Park, *Wonders and the Order of Nature: 1150-1750* (Cambridge, MA: MIT Press, 1998), 303-328.
[113] Sibbald, *Scotia Illustrata*, Preface, n.p. From Seneca, *De Otio Sapientis*, 32, translation: John W. Basedore, LCL 254, 193.
[114] Sibbald, *Nuncius Scoto-Britannus*.
[115] On Vallés, see Concetta Pennuto, "Lay Readings of the Bible in Early Modern Europe," in *Francisco Vallés' De Sacra Philosophia: A Medical Reading of the Bible*, ed. Erminia Ardissino and Élise Boillet (Leiden: Brill, 2019), 136-59.
[116] "…Studium Philosophiae naturalis, & desiderium cognoscendi rerum causas insitum esse naturaliter hominibus, neque fluere ex aliquo vitioso affectu, ut multas rerum pravarum appetitiones, sed ab ipso Deo rerum omnium & Naturae Parente & Auctore illis esse tributum…" Francisco Vallés, *De iis, quae scripta sunt physice in libris sacris, sive De sacra philosophia, liber singularis* (Turin: Nicolai Beuilaquae, 1587), 471.

However, for Sibbald as well as for the Stoics, primacy should be given to studying nature over human affairs. Sibbald claimed that using human reason, which was according to Galen godlike, to study transient things (*caducarum rerum*) was shameful.[117] In a refutation of cynical apathy, Sibbald then cited Sallust who said that it was no better to spend a human life in silence like cattle, and merely obedient to one's own stomach.[118] Mirroring Leighton's borrowing of the Stoic language of self-enslavement, Sibbald then turned to Seneca: "Enslavement to oneself is the most severe enslavement," but could be easily remedied by eschewing ambition and riches.[119] Instead, Sibbald invited the reader to consider Seneca's questions: "Why am I panting? Why am I sweating? I don't much, and not for long."[120] The answer should be for Sibbald and Seneca to turn to the study of nature as the only way to human freedom. This freedom, according to the Stoics, came in several ways: [121] First, the study of nature helps to distance from sordid matters. Second, the study of nature would help the mind to free itself of the body. And thirdly, a mind trained in the study of subtle, hidden things, will not weaken when studying that which is in the open. As with travel, the mind should not be allowed to wander aimlessly, but should be put to a purpose. And, Sibbald claimed, there was no better purpose than the study of nature, which not only provided knowledge, understanding, strength of mind and constancy, it provided both pleasure and tranquillity.[122]

Sibbald saw natural historical works like his own as providing as much of an opportunity for the study of nature as observations in the field. In the *Nuntius*, Sibbald noted that Seneca had written that in matters which could be obscure as the study of nature, there was

[117] "Quam vero turpe est hanc ipsam rationis vim, quae nobis cum Diis communis inest (ut Galeni verbis utar) caducarum rerum Studio teneri," Sibbald, *Scotia Illustrata*, Preface, n.p. From Sallust, *Bellum Catalinae*, 1

[118] "Quam vero turpe est hanc ipsam rationis vim, quae nobis cum Diis communis inest (ut Galeni verbis utar) caducarum rerum Studio teneri, aut vitam silentio transigere; veluti pecora, quae natura prona arque ventri obedientia finxit?", Sibbald, *Scotia Illustrata*, Preface, n.p. From Sallust, *Bellum Catalinae*, 1.

[119] From *Naturales Quaestiones*, 3.17, Lucius Annaeus Seneca, *Natural Questions*, trans. Harry M. Hine, The Complete Works of Lucius Annaeus Seneca (Chicago: The University of Chicago Press, 2010), 27.

[120] From *Naturales Quaestiones*, 3.17, transl. Hine, 27.

[121] "Primo discedemus a sordidis, deinde animum ipsum, quo magno summoque opus est, seducemus à corpore. Deinde in occultis excercitata subtilitas, non erit in aperto deterior," Seneca, *Naturales Quaestiones*, 3.18.

[122] "Quod sane, sive cognitionem & scientiam, sive firmitudinem & constantiam, sive denique voluptatem & tranquillitatem ejus spectes, nullo melius quam naturae studio perficitur." Sibbald, *Scotia Illustrata*, Preface, n.p.

always room for conjecture.[123] However, a sharp vision could open the path for others to follow the journey from the darkness to the light.[124] While his own work might not bring the conclusive evidence of the truth that the mind desired, Sibbald hoped that it might provide the clues (*indicia*) which could help other, luckier minds to arrive at the truth.[125]

3.3 Seneca's Physics in the *Scotia Illustrata* and after

Sibbald's use of Stoic philosophy went beyond ethics, and his use of Seneca's *Naturales Quaestiones*, particularly books II, III and V, which deal with fire, waters and winds respectively, shows how deeply influential Stoic physics and meteorology were for his examination of Scottish nature. Not only was the extensive use of this work an unusual choice for a naturalist in the second half of the seventeenth century, but his choice also had wider consequences for Sibbald's natural historical project and it reveals how he saw old and new methods in natural history and natural philosophy working productively together.

The influence of Stoic ideas on early modern natural philosophy has been much less studied than neo-Stoicism in politics and literature. As Barker and Goldstein have shown, Stoic physics was particularly influential in the realm of mechanical philosophy.[126] Attention has been paid primarily to Cicero's *De Natura Deorum*, although, as elsewhere, Stoic natural philosophy appears in an eclectic fashion alongside Epicureanism, Aristotelianism and neo-Platonism.[127] This makes the exact philosophical genealogies difficult to discern and Barker suggests that Stoic cosmology by the time of Brahe "had again become so well known that they did not require a label," and that by the beginning of the seventeenth century, the questions turned to different positions within the Stoic natural philosophy.[128] For early modern thinkers, Stoic cosmology provided alternative theories to the Aristotelian division

---

[123] "Sed in rebus tam obscuris dandus est semper locus aliquis Conjecturis nec enim (ut praeclare Philosophus Latinus) omnia nec tanta visimus, quanta sunt," Sibbald, *Nuntius*, 2.

[124] "sed acies nostra aperit sibi Investigando viam, & fundamenta vero jacit, ut Inquisitio transeat ex apertis in obscura," Sibbald, *Nuntius*, 2, from Seneca, *De Otio*, 5.5.

[125] "Hae autem Conjecturae, si eam nequeant afferre evidentiam, quam mens nostra optet, indicia tamen quaedam esse possunt ansaeque, quibus ipsam e latebris Veritatem feliciora ingenia extrahere queant," Sibbald, *Nuntius*, 2.

[126] Peter Barker and Bernard R. Goldstein, "Is Seventeenth Century Physics Indebted to the Stoics?*," *Centaurus* 27, no. 2 (1984): 148 (fn1), 151-4.

[127] Barker, "Stoic Contributions to Early Modern Science," 142.

[128] Barker, "Stoic Contributions to Early Modern Science," 147.

of the physical world into the celestial-terrestrial realm which did not rely on an immutable *aether* and still gave a viable account of change in the heavens and earth.[129]

Apart from Cicero, the most influential text on Stoic physics was Seneca's *Naturales Quaestiones*.[130] Seneca's work had been part of the Ramist canon of teaching physics and could be found in the first proposed Leiden curriculum of 1575.[131] The *Naturales Quaestiones* were also used extensively by the Flemish compiler and editor of Seneca's works, Justus Lipsius who, in his *Physiologica Stoicorum* (1604), tried to reconcile and synthesize materialistic ideas in the ancient text to make them more compatible with Christian doctrines.[132] The *Naturales Quaestiones* do not offer a uniform, coherent account of the workings of the universe, but rather express ideas from Stoic as well as other ancient schools, including Aristotelian and Epicurean philosophers.[133] The Lipsius' edition of Seneca's *Naturales Quaestiones* was found in many erudite libraries of the time, including Sibbald's, and Sibbald also had an edition of Lipsius' *Physiologia Stoicorum* (1604).[134] Lipsian neo-Stoic physics, combined with the Galenic ideas of subtle fluids, also had a profound influence on Cartesian plenism.[135] Seneca's text was pervasive in early modern scholarship, and particularly passages hinting at the transmutability of elements and ideas regarding the underground had, unsurprisingly, been popular among Renaissance writers from Agricola to Kircher.[136]

Sibbald, writing at the tail-end of this humanist interest in Stoic cosmology, used Seneca's physics extensively in the first book of the first part of the *Scotia Illustrata*, which was

---

[129] *Ibid*.
[130] An assessment of the use of *Naturales Quaestiones* from antiquity to the present can be found in Fabio Nanni and Daniele Pellacani, "Per una Rassegna sulla Fortuna delle *Naturales Quaestiones*," in *Seneca e Le Scienze Naturali*, ed. Marco Beretta, Francesco Citti, and Lucia Pasetti (Florence: L.S. Olschki, 2012), 161-252. Barker and Goldstein, "Is Seventeenth Century Physics Indebted to the Stoics?*," 148 (fn1), 150, 154.
[131] Howard Hotson, *The Reformation of Common Learning: Post-Ramist Method and the Reception of the New Philosophy, 1618 - 1670* (Oxford: Oxford University Press, 2020), 42.
[132] Hiro Hirai has counted at least 53 direct quotations from the *Naturales Quaestiones* in the *Physiological Stoicorum*, "Seneca's Naturales Quaestiones in Justus Lipsius' Physiologia Stoicorum: The World-Soul, Providence and Eschatology," in *Seneca e Le Scienze Naturali*, ed. Marco Beretta, Francesco Citti, and Lucia Pasetti (Florence: L.S. Olschki, 2012), 123. On Lipsius' Natural Philosophy, see *Justus Lipsius and Natural Philosophy*, ed. Hirai and Papy.
[133] One the question of originality in Seneca's text, see Harry M. Hine "Originality and Independence in Seneca's *Naturales Quaestiones*, Book 2," in *Seneca e le Scienze Naturali*, 31-47.
[134] *Catalogus Bibliothecae Sibbaldianae* (1707/1722), 33.
[135] Barker and Goldstein "Seventeenth Century Physics," 154-5.
[136] Hirai, "Seneca's Naturalis Quaestiones in Justus Lipsius," 128-9

concerned with the physical components of the cosmos and related these to the specific conditions in Scotland. Following the Hippocratic prompt, Sibbald, aimed in the first part of his work to say something about the general nature of Scotland, its weather, its air and its waters, the customs and food of its inhabitants, and about their diseases and their remedies.[137] Unlike Lipsius, Sibbald did not intend to provide a complete and coherent system of the workings of nature, which would have been unnecessary in a work of medical chorography, but he did employ a wide range of ancient and biblical sources in his account of elemental nature. As a result, Sibbald's cosmographical ideas in the *Scotia Illustrata* are often brief and vague. Sibbald preferred general ideas and analogies to specific theories, and his natural philosophy appears eclectic and, at times, selective. For instance, he made use of Biblical sources in the form of Genesis, the Psalms and the Book of Job. Although from his writing it is unclear how far Sibbald took a reading of, for instance, Job ("Philosophus Jobus") as a natural philosopher literally, he found, for instance, the division of the atmosphere in an upper, divine part – which contained a storehouse of clouds, lightning and winds – and in the lower part which contained the things necessary for human life, useful as it was expressed in that book of the Bible.[138] Tellingly, in this instance, Sibbald cited the one biblical figure which more than any other had been part of a discourse on Stoicism and the Bible in the seventeenth century, both in England as well as on the continent.[139]

Like Descartes and the mechanist philosophers, Sibbald did not follow Seneca's description of the cosmos in its entirety. Rather, he was attracted to certain ideas prevalent in Seneca's writings – the mutual relationships and resemblances between microcosm and macrocosm and the idea of the *pneuma,* breath or life force – and adapted them to the specific Scottish context. Sibbald saw Hippocratic medical meteorology and Galenic theories fit neatly into Seneca's account of the workings of the world, and he often supported theories with accounts of observations conducted by himself and others. For instance, after presenting

---

[137] Sibbald, *Vindiciae*, 5: "Multa tamen quae apud historiae naturalis scriptores referuntur Prodromo meo inserenda judicavi; praesertim de natura regionis, tempestatum constitutione, aere & aquis, de moribus victuque incolarum, et de eorum morbis, et indigenis horum remediis, de illustribus etiam quibusdam viris, et accidentibus quibusdam rarioribus apud nos."

[138] *Scotia Illustrata*, Pars 1, lib. 1, 9, citing Job 38. On the role of the book of Job in discussions of early modern heliocentrism, see Kimberly Susan Hedlin, "The Book of Job in Early Modern England," (PhD Thesis, University of California, 2018).

[139] Barbour, *English Epicures and Stoics*, 228-239.

Hippocratic and Stoic accounts of elemental air, Sibbald recounted Robert Boyle's air-pump experiments and the barometric observations by Edme Mariotte in France and explained that these had their Scottish equivalents in the measurements taken by James Garden in Aberdeen and George Sinclair in Edinburgh.[140] Sibbald's account of elemental water, drawn from Kircher, Hippocrates and Seneca, was followed by observations on tides by Robert Moray, on stalactites by Matthew Mackaile, the Kinghorn cold spring by Patrick Anderson, and lakes by George Mackenzie of Tarbat.[141] Sibbald made use of Gassendi's accounts on meteors, but he was equally ready to supply his own observations on an unusual echo found at his estate of the Kipps.[142] By presenting a cosmography that showed the universal workings of nature applied to the Scottish geographical context, Sibbald showed that natural history could be used to support accounts of Stoic natural philosophy.

The most important theory that attracted the physician Sibbald to Seneca's cosmology was the idea, expressed in the *Naturales Quaestiones* and taken up several times in the first book of the *Scotia Illustrata*, that the macrocosmic world corresponded to the microcosm of the human body. This was not merely an analogy: according to Seneca, processes in the world at large were modelled on the human body.[143] Physiological processes and anatomical functions could be mapped onto the cosmos, and vice versa. For instance, the sun, according to Sibbald, functioned as the heart of the macrocosm, and steadily "supplied by the heat and motion of its ether vigour and fertility to all bodies."[144] And as vital and animal spirits acted in the human body, so did the wind act in the macroscopic earth.[145] This last point picked up implicitly, though not explicitly, the Stoic idea of *pneuma* as a life-giving force which can take different forms in different settings. Sibbald also repeated Seneca's point about the semblance, in language and function, of the veins of the body and the veins in the earth which carry liquid but which like the veins in the body could be constricted or

---

[140] *Scotia Illustrata*, pars 1, lib. 1, 7-11.
[141] *Scotia Illustrata*, pars 1, lib. 1, 14-22.
[142] *Scotia Illustrata*, pars 1, lib. 1, 27, 29.
[143] "…si, cum *Seneca*, placeat natura regi mundum, ad nostrorum corporum exemplar." *Scotia Illustrata,* pars 1 lib.1, 6. Seneca, *Naturales Quaestiones*, 3.15.
[144] *Scotia Illustrata*, Pars 1, lib. 1, 6.
[145] "Quod autem Spiritus Animales & Vitales agunt in corpore humano, hoc in Macrocosmo facit Ventorum spirituosa natura." *Scotia Illustrata*, Pars 1, lib. 1, 12.

cut.[146] Seneca had expressed this in the *Naturales Quaestiones*: "I think that the earth is controlled by nature, and on the model of our own bodies, in which there are both veins and arteries; the former are receptacles for blood, the latter for breath. In the earth too there are some passages through which water runs, others through which breath does; and nature has created such a resemblance to the human body that our ancestors too spoke of 'veins' of water."[147] For the humanist philologist, such an etymological explanation was entirely convincing, even though for a more mechanically thinking physician, they might not have been sufficient.

For the seventeenth-century Christian neo-Stoic, divine providence regulated at both the macrocosmic and the microcosmic level. On the motion of the tides, Sibbald wrote that "certainly, the wonderful Providence of God ought to be admired, which with such regularity excites the waves of the seas, commands them to go forth, and once swollen commands them, and calls them back into their channel."[148] There was a quasi-physiological purpose to this: the regular motion of the tides perpetuated throughout the universe and through the earth's subterranean channels and in the process purged the ocean of impurities, awakened the vital seed and produced the variety of species.[149] The language used in the description of this process mirrored the language of the physicians: as the motion of the seas provided the breath (*respiratio*) of the universe, this motion was analogous to the movement of air (*spiritus*) in human bodies, and the nostrils of the world were in the depths of the ocean through which breath was drawn out and back again, which in turn provided the motion of the waters.[150] Although, as so often, Sibbald did not give an explicit attribution, he borrowed this last section almost word for word from the popular *Polyhistor*, or *De mirabilibus mundi,* by the third-century geographer Gaius Julius Solinus.[151] The idea of subterranean breathing not only as an analogical but also as a mechanical cause

---

[146] *Naturales Quaestiones*, 3.15, *Scotia Illustrata*, Pars 1, lib. 1, 15.

[147] *Naturales Quaestiones*, 3.15, trans. Hines.

[148] "Mirandam certe Dei Providentiam venerari decet, quae tam regulariter Maris Fluctus excitat & excurere jubet, & eosdem intumescentes rursus coercet, & in suum Alveum revocat," *Scotia Illustrata*, Pars 1, lib. 1, 18.

[149] "subterraneorum epistomia transiens perpetuam Aquarum per Universum circulationem efficit, semenque, quod in Aquis latet, per motum potentius ad omnium quae in Terrae meditullio fiunt generationem excitat," *ibid*.

[150] "Quin Maris motus vicem supplet Respirationis in Universo: Sicut enim in corporibus nostris *Commercia* sunt *Spiritualia;* ita quoque in profundis vasti Oceani, Nares quasi Mundi constituae, per quas, remissi Anhelitus &reducti modo, effluent Maria cum impetus Aquas, quo modo effoetae Universi vires restaurateur & exuscitatur" *ibid.*

[151] Solinus, *De Mirabilis Mundi*, 23.20.

of the tides had considerable interest in sixteenth- and early seventeenth-century Europe and was alluded to by Justus Lipsius and Johannes Kepler.[152] As elsewhere, Sibbald was keen to link the universal theories on tides to specific observations made in Scotland by authorities such as Robert Moray and Matthew Mackaile, both of which provided detailed, if not quantitative, accounts of the time, direction and height of tides in different Scottish locales.[153]

Not all of Sibbald's ideas regarding macrocosmic and microcosmic connections were derived from ancient writers like Seneca or Solinus. Athanasius Kircher's *Mundus Subterraneus* (1665) was an important contemporary theoretical source, although Kircher had borrowed from Seneca himself. Sibbald took up Kircher's idea that the mountains supported the structure of the terrestrial globe in the same manner that bones supported the structure of the human body.[154] Kircher's *Mundus* was widely read and debated after it was published, although its reception in England and the Royal Society was generally not enthusiastic, and the work disappointed Steno, Boyle and other members as they failed to reproduce the experiments on petrifaction that Kircher described.[155] Sibbald was either unaware of the debates or chose to ignore them, and he supported Kircher's account of the bottom of the ocean, which contained valleys, mountains, meadows of corals and bituminous mines, with his own knowledge of the Firth of Forth.[156]

Not only was the macroscopic world modelled on the body's microcosm, but knowledge about the physical processes could in turn be useful to identify the causes of disease in humans. This was particularly evident when it came to petrifactions in nature and the corresponding process that generated the stones in kidneys and other human organs. Sibbald noted that he had in his possession several stones from the petrifying spring at Hamilton, which contained putrefied mosses (*qui instar Musci putrefacti sunt*).[157] This, according to Sibbald, was remarkable proof that the petrifying spirit at work in the

---

[152] Bernard Joly, "Stoic Influences on Sixteenth and Seventeenth-Century Theories of Tides," *Revue dhistoire des sciences* 61, no. 2 (2008), 10-12.
[153] *Scotia Illustrata*, Pars 1, lib. 1, 18-9. Moray's account, more detailed and including quantitative data, although without any causal explanation, had been published in the *Philosophical Transations*, IV (1664), 53-4.
[154] *Scotia Illustrata*, Pars 1, lib. 1, 29, citing Kircher's *Mundus*, book 2.
[155] Findlen, *Possessing Nature*, 236-7.
[156] *Scotia Illustrata*, Pars 1, lib. 1, 20.
[157] *Scotia Illustrata*, Pars 1, lib. 1, 21.

macrocosmos worked in the same way in the microcosm of the human body.[158] The concept of *succus lapidescens* (petrifying juice) was prominent in early modern works on geology and appeared in the work of Georg Agricola (1494-1555) from where it was taken up by Thomas Bartholin and Ole Worm.[159] Sibbald did not give an explicit reference to these authors, but judging from the prominence of Kircher's work in the *Scotia Illustrata*, the Jesuit's *Mundus Subterraneus* of 1665 might have been his main source. *Succus lapidescens* was usually employed to explain the petrifaction of existing objects like mussels or shark's teeth, or the formation of mimetic objects that resembled them, the *lusus naturae* of the fossil debates. In the *Scotia Illustrata*, however, Sibbald took this specific sense of mimesis and applied it to the idea of petrifying processes which are universally at work in the world and the human body. The flexible concept of *succus lapidescens* became in Sibbald's medical reading the *spiritus lapidescens*, which in the human body possessed a harmful, rather than a generative power. Sibbald remained interested, but non-dogmatic on the issue of the organic origin of figured stones that resembled living specimens.[160] In the *Scotia Illustrata,* he subscribed to the idea of the formative *lusus naturae*, as Kircher presented it, but was content with remarking that "nature plays a wonderful game" with those things that she denied life and movement, but imparted forms of a higher degree on them.[161]

It is notable that, for Sibbald, his possession of stones covered in petrifying moss amounted to a kind of proof, but not of the type of experimental proof of the Royal Society and the contemporary debates taking place about the causes of petrifactions.[162] Robert Hooke had conducted experiments on petrifaction several years before the publication of the *Scotia Illustrata*.[163] At the same time, Sibbald's role model, Martin Lister, was also examining the geological and physiological processes of petrifactions.[164] Lister based his ideas on iatrochemical experiments performed at the Royal Society during the 1670s and

---

[158] "Quod insigne documentum est, dari in Macrocosmo, non minus quam in Microcosmo, spiritum quendam (seu succum malis) lapidescentem, qui concretiones eiusmodi lapideas producat," *Scotia Illustrata*, Pars 1, lib. 1, 21.
[159] Lisbet Tarp, "Fertile Stones," in *The Matter of Mimesis*, ed. Marjolijn Bol and E. C. Spary (Leiden: Brill, 2023), 424-5.
[160] See Chapter VII.
[161] *Scotia Illustrata*, pars 2, lib. 4, 49 "…iis enim mire ludit natura, ut quibus vitam & motum infimus ille gradus denegaverit, figuram faltem eorum, qui superioris gradus sunt, impertiret."
[162] Alexandru Liciu, "Robert Hooke's Science of 'Petrifaction', the Trattato Del Legno Fossile, and the Republic of Letters," *Erudition and the Republic of Letters* 8, no. 3 (2023): 279-306.
[163] Liciu, "Robert Hooke's Science of 'Petrifaction'," 297-98.
[164] Roos, *Web of Nature*, 209-15, 219.

1680s and had published the results of these experiments in his work on English medical springs, *De fontibus medicatis Angliæ* (1682). Sibbald was an observer of nature, however, and not an experimentalist and by employing the language of petrifying or juice of evils (*succum malis*), Sibbald gave a qualitative explanation for petrifactions without providing experimental proof. Sibbald's proof was derived from observing the result of the process, the moss-covered stones, which was similar to the observations from clinical pathology in which a sick patient was observed. Contemplating natural productions allowed Sibbald to consider the analogies of microcosmos and macrocosmos, and the stones made it into his collection of *naturalia*.[165]

Since natural processes were the same in body and nature, Sibbald used the language, and perhaps the methods of the practising doctor, rather than the chymical or microscopic methods of the experimenter like Lister and Hooke. In his section on disease, Sibbald talked about stones and calcareous material found in the human body. Again, equating processes in the macrocosm to the microcosm, he noted that he performed "autopsies" on stalagmites found in the cave at Slains and others to confirm the analogous process.[166] Characteristically, Sibbald did not provide any details about his exploratory method of but the scalpel rather than the microscope or the alembic was Sibbald's preferred tool.

As has been noted above (Section 2.2), despite their methodological differences, Sibbald saw in Lister's work proof of his own ideas. When Lister published his accounts on bladder stones, Sibbald gave it enthusiastic approval, and in a letter published in the *Philosophical Transactions*, he told Lister that "the way the Stone is produced in the Bladder, from the way that Shells and Pearls are produced, and from the Petrifactions that are made by Mineral Waters is most satisfying in my Opinion, and preferable to what I have seen Written

---

[165] Robert Sibbald, *Auctarium musaei Balfouriani, e musaeo Sibbaldiano, sive, Enumeratio & descriptio rerum rariorum, tàm naturalium quam artificialium, tàm domesticarum quàm exoticarum* (Edinburgh, 1697), 59. Perhaps tellingly, although the stones from Hamilton wood did make it into the *Auctarium* collection, there is no mention of petrifying spirits, and even the identity of the mosses which were the causes of petrifactions in the *Scotia Illustrata* was ambiguous by the time the catalogue was written in 1697. The *Auctarium* entry reads "A Mass of Stone like petrified Moss from *Hamilton Wood*. The *Styriae* wind to and from, and the Grains have bigger points, so as to resemble petrified Moss," expressing uncertainty about the actual nature of the specimen. However, in the Latin title of the entry – *Stalagmites nostras, in Massam instar Musci petrifacti concretus* – the ambiguity is not present.

[166] "Et cum recte licet argumentari a causa, quae lapides in Macrocosmo sive Universo conficit, ad eandem quae in Microcosmo seu Homine idem peragit, quandoquidem autopsia, constet lapidem illum Stalagmitem," *Scotia Illustrata*, pars 1, lib. 2, 65. The word autopsy here signifies a "seeing for himself," in the literal sense of the word.

by any other."[167] For Sibbald modern methods of experimentation served to confirm, not reject, ancient ideas about the relationship between body and cosmos.

Another Stoic idea, which interested Sibbald beyond the *Scotia Illustrata*, was that of the movement of air and its geological and physiological implications. Sibbald had explained in the *Scotia Illustrata* that the windy conditions prevalent in Scotland had beneficial effects on human health.[168] As in the human body, weak and languid spirits could be the cause of disease, in the macrocosmic world, the absence of moving winds could cause the air to become stagnant and putrefying.[169] For this reason, there was an absence of diseases like the English sweating sickness (s*udor anglicus*) amongst the Scots, since the Earth's exhalations which are turned to rain in England, remain as wind in the more barren Scottish landscape.[170] Unhealthy warmer air could be found near underground metal mines and caves, stagnant waters, deep valleys, or on top of steep mountains.[171] In the *Scotia Illustrata*, Galenic ideas on environmental influences on human health sat comfortably alongside Stoic ideas on the movement of air, and with it the implications of macrocosmic and microcosmic resemblances.

Besides environmental influences on human health, air movement was also a causal factor in natural phenomena. This can be illustrated by a letter Sibbald wrote to the London physician and natural philosopher Walter Charleton (1619–1707) sometime after 1690.[172] Charleton had recently been appointed the president of the London College of Physicians and had spearheaded the confident stance of the college in applying iatrochemistry and

---

[167] *Philosophical Transactions*, vol. XIX (1696), 321.
[168] *Scotia Illustrata*, pars 1, lib. 1, 12.
[169] "Quod autem spiritus animales & vitales agunt in corpore humano, hoc in macrocosmo facit ventorum spirituosa natura. Et quemadmodum, spiritibus labefactis & languentibus, varios morbos patitur homo; ita & silentibus ventis, putrefcit aer & corrumpit," *ibid*.
[170] "Et quoniam, quae exhalationes anglis in Pluvias vertuntur, nobis saepius in ventor resolvuntur, quod nudior & aspersior nostra Regio sit, ex qua sicciores & puriores sunt Exhalationes, quas frequentissimae aurae magis quidem exaltant et depurant. ea ratio mihi videtur, quod raro faeviat apud nos pestis quae vicinis regionibus: et quod sudor anglicus nunquam nostrates pervaserit, purioris et salubrioris aeris non leve argumentum," *ibid.*
[171] *Scotia Illustrata*, pars 1, lib. 1, 8.
[172] Printed in Robert Sibbald, *Miscellanea eruditæ antiquitatis quæ ad borealem Britanniæ majoris partem pertinent* (Edinburgh: Andrew Simpson, 1710), as part of Robert Sibbald, *Tractatus varii ad Scotiæ antiquæ & modernæ historiam facientes: in unum collecti, & jam primum editi...* (Edinburgh: Andrew Simpson, 1711), 82-87. On Charleton, see Emily Booth, *'A Subtle and Mysterious Machine': The Medical World of Walter Charleton (1619-1707)* (Dordrecht: Springer, 2005).

natural history which made Lister's work so attractive for Sibbald.[173] Sibbald had met Charleton in March 1686 during his forced London journey following his conversion to Catholicism.[174] On that occasion, Sibbald had been made an honorary fellow of the London College of Physicians, and as president of the college, Charleton confirmed Sibbald's status among the London physicians in a letter in 1690.[175] Charleton had interests in modern medical methods and theories like Helmontian iatrochemistry and corpuscularianism and had studied ancient writers and medical authorities during his education at Oxford.[176] His interest in ethics led him to compile an apologetic account of Epicurus' Morals based on writings which include the Stoics and sought to reconcile different schools of ancient philosophies.[177] The intellectual focus of Charleton's work, summed up by Charleton's biographer Emily Booth as "an emphasis on textual authority, an eclectic acceptance of a range of alternative theories, and an emphasis upon the meditative and solitary creation of knowledge," are resonant with the kind of natural history that Sibbald practised.[178]

Sibbald's letter to Charleton largely consisted of what Sibbald termed a τεκμήριον (*tekmerion*) – a witnessing, or proof – of the connection between storms and earthquakes. Sibbald may have felt that offering his *tekmerion* to Charleton would raise his standing with the London physicians who were to his judgement, sympathetic to these kinds of speculative ideas about natural history, physiology and geographically anchored environmental determinism. In the letter, Sibbald gave an account of a terrible storm that had raged in Scotland in the previous year. This storm was so violent that it had caused ships to be loosened from their anchors and it had felled many trees, including two on Sibbald's estate outside of Edinburgh. At the same time, an earthquake had caused death and destruction at a specific location in Sutherland in the north of the country, of which Sibbald had received a report from the local governor. However, Sibbald concluded, the earth must have been moved by an external force, and in the absence of things like underground mines or caves at that location. Sibbald then concluded that the only external force could have

---

[173] Roos, *Web of Nature*, 341-2. See Chapter II.
[174] Sibbald, *Memoirs*, 91-2.
[175] Sibbald, *Memoirs*, 96. Sibbald had the letter printed in *Miscellanea eruditæ antiquitatis*, 81-2.
[176] Booth, "A Subtle and Mysterious Machine," 18.
[177] Walter Charleton, *Epicurus' Morals, Collected Partly out of His Own Greek Text, in Diogenes Laertius, and Partly out of the Rhapsodies of Marcus Antoninus, Plutarch, Cicero, & Seneca* (London: H.Herringman, 1670).
[178] Booth, "A Subtle and Mysterious Machine," 3.

been the wind which raged throughout Scotland at the time.

Apart from vague ideas about the subterranean derived from Kircher, the *Scotia Illustrata* had been relatively weak on details about underground matters and had not mentioned earthquakes at all. However, when faced with such a preternatural event in a country not used to earthquakes, Sibbald, predictably, turned to Seneca who in his sixth book of the *Naturales Quaestiones*, had explained that the wind had such powers as to be able to cause earthquakes.[179] Seneca's aim in explaining unavoidable natural disasters was to eradicate the fear of them and replace it with an attitude of wonder. Elemental air was for the Stoics, the most important element, and in his *Scotia Illustrata*, Sibbald had followed Seneca in describing air as that which united and separated heaven and earth: "it separates, by intervening between the two, it unites, because it brings both into harmony."[180] Although Sibbald did not make the connection between the macrocosm and microcosm explicit to Charleton, for Seneca and the Stoics, *pneuma* – air, or breath – was the life-giving force both in the macrocosm as well as in the macrocosm of the human body. Seneca's account of earthquakes was replete with corporeal references, from the weak breath caused by fear and old age to the impermeability of the skin to air, which caused the breath to be stored in the deeper cavities of the bodies, in the same way, that the outer layer of the earth was impermeable to winds.[181] Sibbald also employed corporal language in his account of the wind to Charleton. Using Virgil, Sibbald told his colleague that "breath [*spiritus*] is indeed an indomitable force: there will be nothing to 'restrain the wrestling winds and the deafening storms with its command and curb them with chains and prison'."[182] He then cited Seneca's mechanism of earthquakes: "Winds sweep down into the cavities of the earth; then, when all the spaces are full, and the air has condensed as much as it could, any breath than comes along later pushes and crushes the air already there, and with repeated gusts it first compresses it, then catapults it forward."[183] Sibbald then explained to Charleton the local conditions which gave rise to the phenomenon. The lay of the land, close to the sea, caused

---

[179] "Primo ergo ostendendum est, Ventum eiusmodi vim habere posse, dein quomodo illa vis tantum effectum produxerit," Sibbald, *Miscellanea eruditæ antiquitatis*, 85.
[180] "Separat, qua medius intervenit: jungit, quia utrique per hunc inter se consensus est," Sibbald, *Scotia Illustrata*, pars 1, lib 1., 7, citing Seneca, *Naturales Quaestiones*, 2.4
[181] Seneca, *Naturales Quaestiones,* 6.19 and 6.24.
[182] Sibbald, *Miscellanea eruditæ antiquitatis*, 85. From Virgil, *Aeneid*, 1.53-4.
[183] Seneca, *Naturales Quaestiones,* 6.3, trans. Hine.

an accumulation of various vitriolic, aluminous, nitrous and sulphurous particles which gave rise to the wind, and the accumulation of peat mosses and wet weather caused the pores which would allow the wind to escape to be closed.

In the explanation of this account of an unusual phenomenon in Scotland, Sibbald drew from a similar toolbox that he had employed when writing the *Scotia Illustrata*, in which the underlying cosmological ideas remained the same: eye witness accounts, local geographical knowledge and chemistry were all employed in Sibbald's support of Stoic natural philosophy.

3.4 The consequences of natural history - on the Αὐτάρκεια of Scotland

For Sibbald, the purpose of natural history was not only moral edification and an explanation of the processes at work in the macrocosm and the human body. As the royal warrant stated, the work was to be an account of the economic value of its natural productions. Sibbald used this remit as an opportunity to advance a personal virtue from classical philosophy and apply it to the country as a whole. In this, he drew from Stoic and other Hellenic philosophical traditions, as well as from Renaissance medical humanism.

The final chapter of the first book, which he entitled "On the autarky [αὐτάρκεια] of Scotland, or the fruitfulness in producing that which is necessary for use in Life," sought to answer the question of what a country considered poor in natural resources, particularly those derived from plants, and beholden to harsh climactic conditions could offer to its inhabitants in the way of sustenance and a good life.[184] Sibbald explained that, even though it was merely squeezed into a small part of the world, Scotland nevertheless did not lack a diverse landscape. In some places, Sibbald described, the ground is covered almost perpetually in snow, in other places, there are bituminous fuming lakes.[185] Barren rocks and hideous lakes were a sad sight in a landscape supporting only wild heather.[186] But while in

---

[184] "De 'Αὐτάρκεια SCOTIAE, Seu de ejus foecunditate in iis producendis, quae ad vitae usus necessaria sunt." *Scotia Illustrata*, pars 1, lib.1, 45. Among Sibbald's list of manuscripts in NLS Adv. MS 33.3.16 is one written by Sibbald with the title "Αὐτάρκεια Scotia in qua multiplices Natura variaeq Vegetabiles Animales et Minerales in Scotia diffuse nunc primii in lucem producuntur et varii eorii usus emitis[?] exponuntur 8vo." This may be a draft of this chapter of the *Scotia Illustrata*, but is no longer extant.

[185] "In quibusdam enim locis terra pepetuis fere nivibus obducta riget; in aliis Lacus nunquam congelascit, solum bitumine accenso fumat," *Scotia Illustrata*, pars 1, lib.1, 45.

[186] "Hic Saxo sterilis ac Lacubus horrida, adspectu tristis est, solamque Ericam producit," *ibid*.

some parts there were only sterile rocks, in other places of the country could be found the best wild grains and happy pastures, as if in one place, Nature had gathered the wealth of both worlds.[187] Sibbald went on to state that this abundance meant that for a small price, everyone could purchase the things necessary for life.[188] He proceeded to list various types of grains, culinary and medicinal plants, birds, fishes and metals of the country. Sibbald emphasised that, while there were differences between the plants found in Scotland and elsewhere, a local substitution existed for everything. Sibbald explained that a lack of vineyards was no problem in a country that produced malted beverages and beer, both of them more convenient to produce and healthier to consume than wine. Instead of olive oil, Scotland had butter, instead of citrus fruit, there were plums, cherries, and various wild berries. Additionally, Scotland's underground provided ample riches, with plenty of gold and silver mines and building stones such as marble and alabaster. Any supposed defect was balanced by nature. The cold weather of the northern climate was compensated for by an abundance of coal and peat moss for heating. For diseases which derived from exposure to the salty and heavy air near the Scottish seas, there were locally grown plants which provided a remedy. [189] In short, God, through nature, had provided the perfect balance necessary for life in one place.[190] What is implicit in Sibbald's assertion of the self-sufficiency of the country is that this self-sufficiency can only be recognised by obtaining a knowledge of local nature and that his *Scotia Illustrata* itself was to be an important part of this knowledge.

At the time of his writing, there were debates about improvement and luxury being conducted by members of the Royal Society in England.[191] In these debates, Scotland often emerged as England's poor relation, lacking a sound economic basis and a sufficient improvement drive. In the scholarship of these debates, any consideration of Scottish

[187] "…quasi utriusque Orbis opes in hoc Terrae punctum congereret liberalis Natura…," *ibid*.
[188] "…levi tamen pretio quilibet ea, quae ad vitam necessaria sunt, comparare possit," *ibid*.
[189] "Quod si ex salfuginoso crassiorique Maris vapore attracto, & impedita, propter Aeris frigiditatem, diapnoe, sanguis diathesin Scorbuticam aliosque Morbos a redundante fero contrahere aptus est, etiam adversus haec mala provisum est nobis Plantis Indigenis sponte nascentibus...," *ibid.*
[190] Sibbald supported this with Psalm 8: "What is man, that thou art mindful of him? and the son of man, that thou visitest him? For thou hast made him a little lower than the angels, and hast crowned him with glory and honour. Thou madest him to have dominion over the works of thy hands; thou hast put all things under his feet," King James Version.
[191] Paul Slack, *The Invention of Improvement: Information and Material Progress in Seventeenth-Century England* (Oxford: Oxford University Press, 2014), 129-169.

efforts of improvement is seen as merely following English practices, and Sibbald – an "admirer of the Royal Society of London," as Paul Slack put it – simply as an emulator of these.[192] However, as Sibbald's concern with Scottish self-sufficiency shows, the picture is somewhat complicated by the fact that, during the time when Sibbald wrote the *Scotia Illustrata*, there is little to suggest that Sibbald drew extensively directly from English practices. Rather, as this section suggests, he saw himself as part of a project which had deeper historical and wider geographical roots and one that did not advocate for unalloyed improvement.

By choosing to use the term *autarkeia*, Sibbald tapped into the idea that the virtuous life should be led free from undue moral and material outside influence. As with other concepts of Greek philosophy employed by early modern Europeans, a precise translation is difficult, although it is usually rendered as "self-sufficiency." There had been much emphasis on the personal value of self-sufficiency in ancient philosophy among different Hellenistic Schools, including the Cynics, Epicureans and the Stoics. Aristotle, in his Nicomachean Ethics, defined "a self-sufficient thing to mean a thing which merely standing by itself alone renders life desirable lacking in nothing."[193] He saw self-sufficiency as a primary criterion to judge happiness, and stated that "happiness … the final good, must be a thing sufficient in itself."[194] Aristotle conceded that humans were by nature social beings, however, and he did not place restrictions on material necessities for self-sufficiency. The Stoics likewise saw *autarkeia* as a cardinal virtue but refined its meaning. Complete *autarkeia*, that is a rejection of any value of outside help, was relegated to the Cynics.[195] As Seneca explained in his *Epistles*: "'the wise man is self-sufficient.' This phrase … is incorrectly explained by many; for they withdraw the wise man from the world, and force him to dwell within his own skin. But we must mark with care what this sentence signifies and how far it applies; the wise man is sufficient unto himself for a happy existence, but not for mere existence. For he needs many helps towards mere existence; but for a happy existence he needs only a sound and upright

---

[192] Slack, *Invention of Improvement*, 161.
[193] Aristotle, *Nicomachean Ethics* 1.7., Aristotle, *The Nicomachean Ethics*, trans. H Rackham, LCL 73 (Cambridge, MA: Harvard University Press, 1934), 29.
[194] Aristotle, *Nicomachean Ethics* 1.6., trans. H. Rackham.
[195] Frederick E. Brenk, "Sheer Doggedness or Love of Neighbor? Motives for Self-Sufficiency in the Cynics and Others," *Illinois Classical Studies* 27/28 (2002): 77-96.

soul, one that despises Fortune."[196] However, the distinction between the self-sufficiency of the Stoics and that of the Cynics was often blurred and Seneca's self-sufficiency has been described in similar terms to Christian poverty, in which a lessening of desires and independence from external goods were the first steps towards intellectual freedom and spiritual autonomy.[197]

The classical *autarkeia* had enough flexibility that it could be used in different contexts in early modern thought, most often in theological tracts. In these, complete self-sufficiency was usually reserved for the divine, as the theologian Thomas Davison wrote of God, "who is a self-sufficient Being, Infinitely satisfied by the sole enjoyment of himself, being God blessed for ever."[198] Human self-sufficiency was dependent on the divine, and Davison wrote of the "inability of the Self-sufficiency of the best of Creatures, to secure their standing, either in Grace or Glory, without a Divine support and supply."[199] The English Puritan mystic writer Thomas Watson (d.1686), like Sibbald particularly fond of Seneca, equated *autarkeia* with "contentment," and defined "selfe-sufficiency [as that which] a Christian hath that from within, that is able to support him; that strength of faith and good hope through grace, as bears up his heart in the deficiency of outward comforts."[200] On the title page of his work, Watson loosely adapted Seneca's words into the dictum "beatus est qui suis contentus est," or "happy is he who is content with what he has."[201]

Sibbald's use of *autarkeia* in his *Scotia Illustrata*, however, did not come from English theological texts but merged classical philosophy with continental medical humanism. Discussions about the value of "domestic" over "exotic" medicine and food were a pan-European phenomenon, and had a long tradition, particularly in the German, Dutch and French medical humanism of the sixteenth- and early seventeenth century.[202] Alix Cooper has shown how doctors and other medical practitioners had a crucial role in establishing the polarities of exotic and indigenous through the writing of local herbals at a time of increased encounters with non-European plants.[203] Sibbald's emphasis on medical self-sufficiency of a

---

[196] Seneca the Younger, Epistle 9.51, trans. Richard M. Gummere.
[197] Brenk, "Sheer Doggedness or Love of Neighbor?" 93.
[198] Thomas Davison, *The fall of angels laid open* (London: R.Clavell, 1684), 41.
[199] Davison, *The fall of angels*, a2v.
[200] Thomas Watson, *Autarkeia, or, The art of divine contentment* (London: Ralph Smith, 1654), 253-4.
[201] Adapted from Seneca's *De Vita Beata*, 6.
[202] Cooper, *Inventing the Indigenous*, 43.
[203] Cooper, *Inventing the Indigenous*, 22-50.

country derived from the 1644 treatise *Autarkeia Bataviae* by the Dutch physician and Dordrecht town councillor Jan van Beverwyck (1594-1647).[204] Beverwyck's book, popular into the eighteenth century, was suffused with Galenic ideas about environmental influences on human health and contained lists of Dutch native substitutions for *materiae medicae*.[205] Beverwyck's promotion of medical self-sufficiency attempted, in the reading of Cooper, a sense of the "patriotic necessity" of citizens of the newly formed Dutch Republic to turn to indigenous medicine.[206] Luca Tonetti has seen the *autarkeia* of Beverwyck and later uses of the idea of indigenous medicine by Sibbald and by the Italian iatromechanist Giorgio Baglivi (1668–1707) as a cultural move.[207] Sibbald's methodology, aptly described by Tonetti as Hippocratic-Baconian, serves as a cultural redemption (*riscatto*) of Scotland which was threatened to be overshadowed by its southern neighbour.[208] These are important readings of Sibbald, but they somewhat underestimate the depth of his philosophical commitment and the fact that for him, *autarkeia* was not restricted to medical matters, although medical ideas were their origin.

One of the stated aims of the *Scotia Illustrata* was to find local remedies for locally derived diseases for which often exotic and costly *materiae medicae* were employed by Sibbald's compatriots. This did not happen, according to Sibbald, "because of a dearth of natural things of that kind [in Scotland], (for as far as I know, nowhere yields to this region in these things) but rather due to the loathing and carelessness of our people. For most people are beholden to such luxury and hold such contempt of our things that no remedies are pleasing to them, that have not been brought from the far Indies. And they reject those medical simples, which attack disease with equal strength."[209] Sibbald's writing on pharmaceutical matters came at a time when the Edinburgh physicians were engaged in a dispute with the apothecaries and surgeons of the city and attempted to publish their own pharmacopoeia

---

[204] Johan van Beverwijck, *Autarkeia Bataviæ, sive Introductio ad medicinam indigenam* (Leiden: J. Maire, 1644).
[205] Cooper, *Inventing the Indigenous*, 42.
[206] Cooper, *Inventing the Indigenous*, 43, fn.
[207] Luca Tonetti, "In difesa della 'medicina indigena': Sibbald, Baglivi e la metodologia ippocratico-baconiana," in Chiara Beneduce, Denise Vincenti (eds.), *Oeconomia corporis. The Body's Normal and Pathological Constitution at the Intersection of Philosophy and Medicine* (Pisa, 2018): 69-79.
[208] Tonetti, "In difesa della 'medicina indigena'," 71-74, 79.
[209] Sibbald, *Scotia Illustrata*, Preface, n.p.: "Nec hoc prae rerum ejuscemodi naturalium inopia accidit, (nulli enim, quod sciam, regioni in eiusmodi rerum affluentia cedit, ut postea constabit) sed nostrorum potius hominum fastidio et incuria: plerosque enim tantus luxus & rerum nostrarum despectus tenet, ut nec Remedia placeant, nisi quae ab extremis Indis petantur, abjectaque Simplici Medicina quae paribus viribus morbum ejusque causam aggreditur) pomposae tantum Medicamentorum moles in pretio sint."

during the 1680s.[210] Although the precise nature of Sibbald's engagement with this project is difficult to reconstruct, he noted with regret in his memoirs that it was beset by factiousness and discord and "by the malice of some, it was laid aside for ten years thereafter."[211] Sibbald's *Scotia Illustrata* partly pre-empted the Edinburgh physician's pharmacopoeia. Sibbald cited Beverwyck in the second book of the *Scotia Illustrata*, which dealt with diseases in Scotland and recommended locally derived remedies.[212] Sibbald gave lists of indigenous substitutions for exotic medical simples, such as blackthorn for acacia, local berries for citrus fruits and wormwood for ginger.[213] Recognizing that the climate of Scotland was similar to that of the Low Countries, Sibbald offered some of the substitutions that Beverwyck had suggested, including the use of butter for oil, and honey for sugar, the last of which had also been suggested by Thomas Bartholin in 1666.[214]

That Sibbald saw his project as part of a longer tradition of continental medical humanism is not only shown in his use of Beverwyck, but also in a commentary he published in 1710 on the first-century Hippocratic text *De Medicina* by Aulus Cornelius Celsus, who had claimed that even "the most uncivilized nations have known herbs, and other things to hand for the aiding of wounds and diseases."[215] Sibbald used this commentary to show that support of indigenous medicine had French, German and Dutch precedents. Sibbald cited various writers, including the Lyonnaise doctor Symphorien Champier (1471–1539) who had written a vicious attack on Arabic medicine and its use by French doctors in his *Hortus Gallicus, pro Gallis in Gallia scriptus* (1533).[216] In his rejection of non-French remedies, Champier argued that climatic differences played an important role in medical decision-making, and for a "geographical relativism" in medicine.[217] Sibbald cited other authors in support of

---

[210] The *Pharmacopoea Collegii Regii Medicorum Edimburgensium* (finally published 1699) was also a point of contention in the dispute between Sibbald and the Pitcairnians, Archibald Stevenson, of Pitcairne's party, described it as "barely a transcript of the London one, ill-copied and worse explained" David L. Cowen, "The Edinburgh Pharmacopoeia," *Medical History* 1, no. 2 (1957): 123-39. Craig, *History of the Royal College of Physicians of Edinburgh,* 93-96.
[211] Sibbald, *Memoirs,* 85.
[212] *Scotia Illustrata*, pars 1, lib. 2, 76-7.
[213] *Scotia Illustrata*, pars 1, lib. 2, 91.
[214] Cooper, *Inventing the Indigenous*, 45.
[215] Sibbald, "De Elogiis Medicinae indigenae," in *Miscellanea eruditæ antiquitatis quæ ad borealem Britanniæ majoris partem pertinent* (Edinburgh: Andrew Simpson, 1710), 24-28.
[216] Symphorien Champier, *Hortus gallicus pro Gallis in Gallia scriptus* (Lyon: Melchior and Gaspar Trechsel, 1533).
[217] Cooper, *Inventing the Indigenous* 36, Sibbald, "De Elogiis," 25.

indigenous medicine, including the Dutchman Lambert Bidloo (1638–1724), the author of the Swiss pharmacopoeia Jacob de Constant de Rebecque (1645–1732), and the French pharmacist Antoine Constantin (d.1616), who had written *La Pharmacie provinciale & familiere* (1597). Constantin argued that "there was no need for exotic plants and to travel to find remedies, since through the benevolence of nature, the same soil which produces humans, also provides them with nourishment, care, suitable food and medicines," and he argued that Provencal pharmacists were forced by the doctors who prescribed exotic medicines to exhaust the pockets of the local population.[218] Sibbald also mentioned the German Hieronymus Bock, who in his 1539 herbal had claimed that unlike in other lands that preferred sugar, Germany could pride itself in the liquorice plant, which was, according to Bock, easier to extract and also healthier.[219] Bock contrasted the sugar, used by the rich, with honey and liquorice, available to to poor, the latter of which was healthier than the former, because liquorice, unlike sugar, quenched rather than provokeed thirst.[220]

That simple foods were healthier than exotic ingredients was a claim not only in early modern medical texts but also in Stoic sources, which Sibbald used in his *Scotia Illustrata*. Drawing from Seneca, Sibbald claimed that a luxurious lifestyle, which included imports such as sugar, could also be the cause of disease in itself.[221] Seneca had imagined a golden age before men "began to seek dishes not for the sake of removing, but of rousing, the appetite," and before diseases like jaundice, dropsy and other illnesses began to plague them.[222] Luxurious foods were only part of the problem, however, and "men used to be free from such ills because they had not yet slackened their strength by indulgence, because they had control over themselves, and supplied their own needs… Hence, there was no need for all our mighty medical paraphernalia, for so many instruments and pill-boxes."[223] Indeed, according to Seneca, the task of the physician was a simpler one and physicians did

---

[218] Sibbald, "De Elogiis," 26. "Tout ce qui est propre pour la nourriture, entretien,& plaisir des homes… Les Apothicaires, quand en ce faict, doivent estre deschargez de toute accusation & blatine. Car ils ne peuvent, ni doivent, meubler leurs boutiques, d'autres drogues, que de celles, que les Medecins mettent ordinairement en practique. Lesquelles estant acheptees cheres, ne peuvent estre vendues qu'a cher pris," Antoine Constantin, *Brief traicté de la pharmacie prouinciale et familiere: suiuant laquelle la medecine peut estre faicte des remedes qui se treuuent en chasque prouince* (Lyon: Tibaud Ancelin, 1597), 12, 17.

[219] Sibbald, "De Elogiis," 25, citing from the 1552 Latin edition by David Kyber.

[220] *Ibid*.

[221] *Scotia Illustrata*, pars 1, lib. 2, 50.

[222] Seneca, *Epistles* 95.14-15.

[223] Seneca, *Epistles* 95.18.

not know treatments like bloodletting or giving dietary advice, because they did not have to.[224]

This notion of an imagined populace which was removed from luxury and free of disease also roused Sibbald's interest in the customs and diet of the Scottish Highlanders, who were seen as leading a more primitive, and therefore, more healthy lifestyle. Sibbald quoted George Buchanan on the Orkney Islanders, who noted that: "The common people in their daily life retain much of their ancient frugality and therefore all enjoy almost perpetual health in body and mind."[225] Mirroring Bock's enthusiasm for the German liquorice plant, Sibbald remarked on the Highlanders' tradition of consuming the root of the *karemile* (heath pea) plant in the Highlands, which had similar thirst-quenching properties to liquorice.[226] Sibbald remained interested in the *karemile* and in 1710 published a tract that tried to explore whether the Scottish plant might be related to the *chara* root mentioned by Caesar in his account of the battle of Dyrrachium.[227] During this battle, Caesar's starving soldiers were able to use *chara* in such abundance that they were able to throw the bread made from it at their approaching enemies.[228] Sibbald's antiquarian and natural historical knowledge was put in service of trying to establish how far Scotland possessed dietary self-sufficiency.

By the turn of the eighteenth century, the idea of Scottish self-sufficiency and claims of the simple and healthy diet of the Highlanders came under pressure when confronted with the famine conditions of the 1690s.[229] Harvest failures and badly managed famine relief led to widespread misery in Scotland with one recent estimate of casualty numbers reaching 6-10% of the Scottish population as a whole.[230] Worse, the Highlands, whose robustness had been praised by Sibbald in the *Scotia Illustrata*, were disproportionally affected, as Sibbald

---

[224] Seneca, *Epistles* 95.22.
[225] *Scotia Illustrata*, pars 1, lib. 1, 44. "In convictu quotidiano multum e vetusta parsimonia adhuc vulgus retinet: itaque perpetua fere corporibus & animi sanitate omnes fruuntur."
[226] *Scotia Illustrata*, pars 1, lib. 1, 43.
[227] Robert Sibbald, "De radice Chara dicta," in *Miscelanea Eruditae Antiquitatis*, 16-24. On a similar case of the use of antiquarianism for contemporary health concerns, see Nancy G. Siraisi, "Historiae, Natural History, Roman Antiquity, and Some Roman Physicians," in *Historia: Empiricism and Erudition in Early Modern Europe*, ed. Gianna Pomata and Nancy G. Siraisi, Transformations (Cambridge: MIT Press, 2005), 325–54.
[228] Sibbald, "De radice Chara dicta," 16-17.
[229] Karen J. Cullen, *Famine in Scotland: The "Ill Years" of the 1690s* (Edinburgh: Edinburgh University Press, 2010), 98-104.
[230] Cullen, *Famine in Scotland*, 198.

knew.[231] Sibbald's immediate public response to this crisis was not an abandonment of the idea of self-sufficiency, but rather a doubling down on his assertion that if the local possibilities by nature were better known, the crisis could be better managed. This response was published anonymously in his English-language pamphlet entitled *Provision for the Poor in Time of Dearth and Scarcity*, in which Sibbald listed native Scottish plants as well as land and sea animals found in Scotland which may be used for foodstuffs.[232]

Sibbald began the *Provision* by recounting, in graphic detail, the effects of the Scottish harvest failures: "some Die by the Way-side, some drop down the Streets, the poor sucking Babe are Starving for want of Milk, which the empty Breasts of their Mothers cannot furnish them."[233] In response to the situation, Sibbald first proposed that those with possessions needed to give charity both out of Christian duty, as well as a necessity to keep the order of the country for "where there are many Poor, the Rich cannot be secure in the Possession of what they have."[234] However, the best material remedy to the crisis was not a redistribution of wealth or the importation of food from elsewhere. Instead, Sibbald aimed to "show what Products of our Countrey may be used for Nourishment in this pressing Exigence," because "GOD hath Bountifully bestowed many such upon us, the meanest of them are used by other People, and we are to blame if in time of Scarcity, we make not use of them."[235] Sibbald emphasised non-urban, non-luxurious knowledge which recalled Seneca's advocacy of a primitive lifestyle. Sibbald noted the simple plants used in the diet of the Highlanders who could subsist on oatmeal mixed with water and ate sea kelp, native crops like the *karemile* root, or the flesh of otters and foxes.[236] In Sibbald's account, native knowledge from other northern regions was also useful, and he reported that the people of the Faeroe isles ate the stalks of garden angelica, and other northern populations subsisted on sea

---

[231] Cullen, *Famine in Scotland*, 198. NLS Adv. MS 33.5.16 [Discourse anent improvement], f. 19. There, Sibbald noted that while the population of the Highlands had not increased as much as those of the lowlands, it had increased "in a greater proportion then ther Country as they Employ it bears."

[232] [Robert Sibbald], *Provision for the Poor in Time of Dearth & Scarcity. Where There Is an Account of Such Food as May Be Easily Gotten When Corns Are Scarce, or Unfit for Use: And of Such Meats as May Be Used When the Ordinary Provisions Fail, or Are Very Dear. Written for the Relief of the Poor* (Edinburgh: James Watson, 1699). A second edition was published in 1709 with the suffix *by R. S. Doctor of Medicine*, but was otherwise unchanged.

[233] *Provision for the Poor*, 3.

[234] *Provision for the Poor*, 2.

[235] *Provision for the Poor*, 3-4.

[236] *Provision for the Poor*, 7, 9, 11.

lettuce.[237] The problem, according to Sibbald, was not that Scotland could not feed itself, but rather that there was insufficient knowledge and recognition of the local conditions of nature. While locally derived foodstuffs might not "make people Full and Wanton," they "provide them with what may keep in their Lives." [238] This concern with the basic level of sustenance as the foundation for the achievement of moral and spiritual self-sufficiency mirrors Seneca's concern about the first step to self-sufficiency.

Sibbald's emphasis on the possibility provided by wild plants and animals makes it hard to classify the *Provision* as an improvement text. There was little in Sibbald's tract in ways of improving the Scottish economy on a broader scale, apart from the suggestion that "it were to be wished that the meanest People had a Kitchen Garden, out of which they might be supplied with some sort of Food every Month in the year."[239] Indeed, such an improvement was not even necessary, because Sibbald showed with his list of native Scottish foodstuffs that "we see God hath plentifully provided for the Poor, with what may sustain them in the greatest scarcity and dearth of Victual; if they will put out their hands and take it." [240] In his *Provision*, Sibbald suggested that the people should "make use of the Art and Industry which is necessary," to realise the potential of Scottish nature, but he did not go into any details on improvement beyond the suggestion of kitchen gardens.[241]

However, in unpublished manuscripts, Sibbald showed an increasing interest in economic improvement and moved away from the earlier emphasis on *autarkeia*. He drafted several *Discourses* on improvement in 1698, which partly blamed the conditions of the country on population increases during the last century.[242] Elsewhere, his natural historical work became more strongly oriented towards an interventionist view as well. Around that time, Sibbald started collecting material for a second volume of the *Scotia Illustrata* in his commonplace book, where he noted down details for the improvement of bogs and

---

[237] *Provision for the Poor*, 9.
[238] *Provision for the Poor*, 4.
[239] *Provision for the Poor*, 13-4. The suggestion of Scottish kitchen gardens had been made in 1675 by the Englishman John Beale, who suggested that, contrary to the assertion of the fellow member of the Royal Society, the native Scot Robert Moray, the climate in Scotland was not too cold for them. *Philosophical Transactions of the Royal Society of London*, vol. X (1675), 361-362.
[240] *Provision for the Poor* 24.
[241] *Provision for the Poor* 24.
[242] NLS Adv. MS 33.5.16, [Discourses anent the improvements may be made in Scotland for advancing the Wealth of the Kingdome in these parts].

marshes, the use of black earths as dye-stuffs, the use of sea kelp in fertilising arable land, salt-making in the highlands, details about the mining of gold, silver and other metals. [243] His improvement manuscripts also contained material on the improvement of the fishing industry, and Sibbald was increasingly interested in the commercial exploitation of whales and other cetaceous animals which were the subject of the *Phalainologia nova* (1682).[244]

Some of Sibbald's improvement suggestions were not to change nature, but rather to restore it to what he considered to be a natural balance. Regarding the existence of bogs and marshes, Sibbald wrote that "some are of the opinion they all proceede from the want of industrie in manuring the Ground, and it is certainly the cause of some of them."[245] However, some of these marshes, termed "creeping bogs," appeared to be growing unnaturally and "since much land is yrby rendered useless by ym: covering ye land which sould[sic] be medous & evenest plains" they "destroy cattle that fall into them; smell is unwholesome and the fogs from them are putrid and they corrupt rainwater that falls into them."[246] These marshes might be drained, but not in order to make naturally infertile land fertile, but just to restore land which had become useless by "unnatural" processes to a state of fertility.

Another focus for improvement became mines and underground productions, which had also been of interest to earlier Stuart improvers.[247] Sibbald had been somewhat cautious about this in the *Scotia Illustrata*. In his section on *autarkeia* Sibbald detailed the different types of precious metals found in Scotland, such as gold, silver, copper, iron or lead.[248] He also noted that Scotland possessed precious building stones like marble and alabaster, but he placed these in the category of *instrumenta Luxuriae*, which indicated their potential for moral corruption.[249] Elsewhere in the work, Sibbald noted that the underground provided

---

[243] NLS Adv. MS 33.5.19, [Ane Essay Relating to the Natural History of Scotland by way of Supplement to the Prodromus Naturalis Historae Scotae published anno 1684' in the hand of Sir Robert Sibbald,] ff. 68-70, 74, 78, 82-3.

[244] Robert Sibbald, *Phalainologia nova, sive Observationes de rarioribus quibusdam balaenis in Scotiae littus nuper ejectis: in quibus, nuper conspectae balaenae per genera et species, secundum characteres ab ipsa natura natura impressos distribuuntur* (Edinburgh: John Reid, 1692). Sibbald also planned a second English-speaking edition of this work, Robert Sibbald to Hans Sloane, 12 Sept 1702, EUL MS Dc. 8.35, f. 21. His notes for this edition are NLS Adv. MS 33.5.16, ff. 1-22.

[245] NLS Adv. MS 33.5.19, f. 68.

[246] *Ibid.*, ff. 69-70.

[247] Keller, *Interlopers*, 96-102.

[248] *Scotia Illustrata*, Pars 1, lib. 1, 31.

[249] *Scotia Illustrata*, Pars 1, lib. 1, 46.

materia medica and that underground productions included coins, vessels and ornaments, war machines and instruments, and building materials.[250] Some of Sibbald's readers were keenly interested in this topic, and Sibbald recorded that one of his informants, John Hope of Hopetoun, had shown him two gold pieces procured entirely from the gold of his mines.[251] However, Sibbald also supplied a warning to those who wished to exploit underground resources: the underground could incite wrongful desires and expose us to innumerable evils.[252] To blame were not the underground resources themselves, since they were part of God's works, but rather us humans who have devised evil artifices from them which corrupted them by their use.[253] Another moral taint came from hubristic human attempts to change one metal to another. Sibbald claimed, however, that it was not possible to create metals by artificial means, and the chymists had tried in vain to generate different types of metals on the surface of the earth, which could only be generated in the bosom of the Earth, each from their own seeds created by God.[254] The *Scotia Illustrata* had not dealt with mines and minerals extensively and Sibbald referred the treatment of these to the planned second volume of the work. However, by the late 1690s, his own interest in the subject had grown considerably, perhaps also spurned by his acquisition, shortly before 1695, of mining rights for coal and minerals at his estate of the Kipps.[255] In a letter to William Bennet the Younger, inheritor to a sizable estate, Sibbald noted "if the Bowels of [Scotland] were Searched: a great many Mineralls and Metalls would be found in it," and he offered the young laird information about planned alum works.[256]

Sibbald also moved away from the emphasis on historical indigeneity and avoidance of luxury. His improvement *Discourses* showed much more readiness to concede a place for foodstuffs like peaches, apricots, nectarines and saffron, which could be grown in

---

[250] *Scotia Illustrata*, Pars 2, lib. 4, 41.
[251] Sibbald noted with regret that Hope of Hopetoun died in the famous sinking of the HMS Gloucester in 1682. *Scotia Illustrata*, Pars 1, lib. 1, 31.
[252] *Scotia Illustrata*, Pars 2, lib. 4, 41, "In hoc nobis noxia, quod incitamenta pravarum cupiditatum sint, per quas innumeris malis expositi sumus."
[253] *Scotia Illustrata*, Pars 2, lib. 4, 41, "Sed non illa accusanda (bona enim in se, ut reliqua Dei Opera sunt) sed nos, qui multas malas Artes excogitavimus, quibus illorum usus corrumpitur."
[254] *Scotia Illustrata*, Pars 2, lib. 4, 52, "Metalla quaeque ex proprio seminio a Deo creato generantur, quod frustra in Terrae superficie Chymistae, cum illa non nisi ex propriis seminibus, idque in propriis matricibus un Terrae sinu fiant."
[255] Sibbald, *Memoirs*, 70.
[256] Robert Sibbald to William Bennet, 12 July 1697, NRS GD 205/34/4, f. 1.

Scotland.[257] This re-defined indigeneity from that which was given by providence to a particular area of the world, to those things which might be supported in a particular climate. By growing them in Scotland, these crops became indigenised, although they lacked the historical pedigree of plants such as the *karemile*. Sibbald also introduced the distinction between that which was necessary for life and that which was required for its convenience. Sibbald wrote that there were few countries which did not have the necessities for life supplied by nature, but it required active and virtuous inhabitants to have a country with the conveniences of life, which may require commerce and trade.[258] This created the vision of a connected Scotland, in which convenience and not self-sufficient subsistence was the aim. How far Sibbald saw the impending union with England as part of this is hard to establish, but in 1702, he gave some support to it. Writing to Hans Sloane in London, he wished that "wee were more bent for ane Union and then wee might better advance both learning and trade, and better oppose our foreigne enimies."[259]

Improvement was a much stronger driver in Sibbald's later work than it had been in the 1680s. In the *Scotia Illustrata*, Sibbald had pursued natural knowledge sanctioned by a Stoic moral impetus and continental medical humanist concerns for indigeneity. While his methods there overlapped with some of those from Royal Society figures, the idea that he was a Baconian improver has to be tempered by recognising that, for Sibbald, improvement was a process to be undertaken with the kind of caution that Seneca had advised. Foreign travel, luxury and the underground were as much temptations as they were opportunities. It is true that there was no inherent contradiction between Baconian ideas and neo-Stoic philosophy, and both Bacon and Lipsius were concerned with culturing the mind.[260] Bacon had been a reader of Seneca and sought to adapt Stoic natural philosophy and ethics.[261] Boyle, Wilkins and Ray used Seneca in their works, although their favourite passage of the

[257] NLS Adv. MS 33.5.16, ff. 92-4.
[258] NLS Adv. MS 33.5.19, f. 90.
[259] Robert Sibbald to Hans Sloane, 21 December 1702, EUL MS Dc 8.35, f. 28.
[260] Dana Jalobeanu, "Francis Bacon and Justus Lipsius: Natural Philosophy, Natural Theology and the Stoic Discipline of the Mind"" in *Justus Lipsius and Natural Philosophy*, ed. Hiro Hirai and Jan Papy (Brussels: Royal Academy of Belgium, 2011), 107-121.
[261] The most thorough treatment of this can be found in Susan Giesemann North, "Finding Nature's Order: Stoicism, Humanism, and Rhetoric in Francis Bacon's New Philosophy," (PhD thesis, University of Tennessee, Knoxville, 2007). Bacon might have used the *Naturales Quaestiones* in his *Historia Ventorum*, Nanni and Pellacani, "Per una rassegna," 198, 222.

Naturales Quaestiones was not concerned with its moral implications, but rather with the forward-looking assertion that there would be a day "when our descendants are astonished that we did not know such obvious facts."[262] Sibbald emphasised a different aspect of ancient philosophy. For Sibbald, Stoic philosophy offered a way to show why nature should be studied and how the cosmos could be understood. The personal virtue of *autarkeia*, derived from classical moral philosophy, could be applied, via Galenic ideas that emphasised environmental determinism, to the country as a whole. Challenges to the notion that providence had provided everything necessary for subsistence and health meant a turning to a more active exploitation of nature, which would not only ensure survival, but a convenient life.

This was to be continued in Scotland with greater speed during the eighteenth century. The Highlands, crucial for Sibbald's case of indigeneity, medicine, food and health, became a proving ground for new ideas of improvement. [263] Debates about luxury and self-sufficiency were conducted with the background of colonial expansion and enslavement. However, the improvers of the generation after Sibbald were not mainly motivated by Galenic or Stoic medical ideas, nor did they engage with Sibbald's writings in a sustained way. A century after Sibbald, when harvest failures in 1799-1800 threatened Scotland with another subsistence crisis, the Edinburgh Professor of Natural History, John Walker wrote an essay concerning the scarcity of grain in Scotland.[264] Instead of Sibbald's return to basic subsistence levels that could be met by native foodstuffs, Walker promoted the potato, which, according to him in the Scottish Highlands, provided the diet for "about nine months of the year […] without any addition except a little milk, butter, and salt fish."[265] Furthermore, he proposed dietary controls, such as the limitation of the consumption of meat as a remedy for grain scarcity.[266] There are remnants of Sibbald's concern for a simpler diet here, and Walker emphasised the vegetarian nature of the Scottish diet before the Union. According to him, before 1707, cattle in Scotland were raised mainly for export, and

---

[262] Nanni and Pellacani, , "Per una rassegna," 217-19. Seneca, *Naturales Quaestiones*, 7.25, trans. Hine, 130.
[263] Fredrik Albritton Jonsson, *Enlightenment's Frontier: The Scottish Highlands and the Origins of Environmentalism* (New Haven: Yale University Press, 2013).
[264] The essays and lectures are "Memoirs of Sir Andrew Balfour," 323-346 and "Memorial concerning the scarcity of grain in Scotland," 615-629, in John Walker, *Essays on Natural History and Rural Economy* (Edinburgh: Edinburgh University Press, 1808).
[265] Walker, "Memorial," 619.
[266] Walker, "Memorial," 619-621.

it is very likely he had this notion from Sibbald's chorographic work with which he was very familiar.[267] However, there is no reference to Sibbald or earlier concerns about luxury and indigeneity. For Sibbald, natural history could prove providentially granted self-sufficiency, and ancient sources, trusted contemporary reports, observation and collecting of natural particulars was a kind of self-knowledge that led to the recognition of *autarkeia*. Both the method as well as the detail of this work would come under threat in the space of a little more than a decade and this threat would occupy the last part of Sibbald's life.

[267] Walker, "Memorial," 618. John Walker, *The Rev. Dr. John Walker' s Report on the Hebrides of 1764 and 1771*, ed. Margaret M. MacKay (Edinburgh: John Donald, 1980), 11.

Chapter IV Natural History under Attack: Archibald Pitcairne and Sibbald's *Vindiciae Scotiae Illustratae*

In 1710, nearing the age of seventy, Sibbald published in Edinburgh a Latin tract entitled *Vindiciae Prodromi Naturalis Historiae Scotiae* ("Vindication of the *Prodromus* of the Natural History of Scotland.")[1] In this thirty-page treatise, Sibbald responded belatedly to the writer of an attack on his *Prodromus*, or *Scotia Illustrata*, that bore the title *Dissertatio de Legibus Historiae Naturalis* ("Treatise on the Laws of Natural History") and that had been published in 1696.[2] The earlier work (hereafter referred to as *De Legibus*) bore the intellectual imprint and name of Archibald Pitcairne, and although he maintained that it had been not his work, but that of over-enthusiastic followers, it represents his ideas concerning medicine and natural history, which were to be conducted on mathematical principles.[3] Pitcairne had been a co-founder of the Physicians' College with Sibbald in 1681, but by the 1690s relations had soured, and Pitcairne and his party were expelled in 1695. The Edinburgh physicians were engaged in a protracted dispute among members of the college about the practices of medicine from 1694 until an amnesty was issued for Pitcairne and his party in 1703.[4] However, not only did the fallout from this dispute last until at least 1710, but the subject of both *De Legibus* and the *Vindiciae* was natural history rather than medicine.

While the dispute in the College of Physicians has received ample historiographical attention, the role of the *Vindiciae* and *De Legibus* has hitherto been underappreciated, and the aim here is to draw attention to these works and the role of natural history. The following chapter will first offer a brief overview of the context of these works, and Pitcairne's role in the dispute. Next, the claims of *De Legibus* will be examined, as they represent not only an *ad hominem* attack but also question the epistemic and philosophical foundations of his natural history enterprise, which the previous two chapters have sought to elucidate. The third section will show that Sibbald's reponse in the *Vindiciae* should not merely be seen as another thetorical salvo in a heated pamphlet war. Rather, Sibbald's tract

---

[1] The full title is Robert Sibbald, *Vindiciae Scotiae illustratae, sive Prodromi naturalis historiae Scotiae, contra prodromomastiges, sub larvâ libelli De legibus historiae naturalis, latentes ...* (Edinburgh: Andrew Symson, 1710).
[2] Published as Archibald Pitcairne, *Dissertatio, de legibus historiae naturalis* (Edinburgh: John Reid, 1696).
[3] David E. Shuttleton, "'A Modest Examination': John Arbuthnot and the Scottish Newtonians," *Journal for Eighteenth-Century Studies* 18, no. 1 (1995), 54.
[4] Craig, *History of the Royal College of Physicians of Edinburgh*, 417.

represents one of the clearest expressions of his vision of natural history and the dangers of disciplinary and methodological encroachment from *novatores* which he saw natural history subjected to. By employing an invective poem by the French humanist scholar Claude Saumaise, Sibbald showed that this type of encroachment followed a familiar pattern, and in response he used scholarly rhetoric that had been honed almost a century earlier.

4.1 Archibald Pitcairne, the fever dispute and its historiography

The heated debate which preceded the publication of the *Vindiciae* has been termed in the historiography as the Edinburgh fever dispute or the "riot in the college," and features prominently in the Scottish history of medicine.[5] Some of this scholarship has been dismissive of the intellectual stakes. Andrew Cunningham has dismissed the episode as a "tale of shabby little squabbles and of fighting for influence and power amongst the Edinburgh medical men," and has painted a picture of continual unrest until the establishment of the Edinburgh medical school in 1726.[6] Another scholar has called the episode "tempest in a teapot."[7] Attention has been paid to the issues concerning the application of mathematical methods in medicine in general, and the cure of fevers in particular, both of which Archibald Pitcairne proposed, partly in response to his admiration for Isaac Newton.[8] Political and religious differences between "Jacobite" and "Williamite," Edinburgh physicians, which loosely aligned for and against mathematical methods have

---

[5] The most important contributions are W. B. Howie, "Sir Archibald Stevenson, His Ancestry, and the Riot in the College of Physicians at Edinburgh," *Medical History* 11, no. 3 (1967): 269-84; Andrew Cunningham, "Sydenham versus Newton: The Edinburgh Fever Dispute of the 1690s between Andrew Brown and Archibald Pitcairne," ed. W. F. Bynum and V. Nutton (London: Wellcome Institute for the History of Medicine, 1981), 71-98; Anita Guerrini, "The Tory Newtonians: Gregory, Pitcairne, and Their Circle," *Journal of British Studies* 25, no. 3 (January 1986): 288-311; Stephen M Stigler, "Apollo Mathematicus: A Story of Resistance to Quantification in the Seventeenth Century," *Proceedings of the American Philosophical Society* 136, no. 1 (1992): 93-126 and Shuttleton, "'A Modest Examination"; Guerrini revisits the fever dispute in her *Obesity and Depression in the Enlightenment: The Life and Times of George Cheyne* (Norman: University of Oklahoma Press, 2000); A brief but valuable discussion of both works can be found in Douglas Duncan, "Scholarship and Politeness in the Early Eighteenth Century," in *The History of Scottish Literature, Vol. 2, 1660–1800*, ed. Andrew Hook (Aberdeen: Aberdeen University Press, 1987), 55-7.

[6] Andrew Cunningham, "Medicine to calm the mind - Boerhaave's medical system, and why it was adopted in Edinburgh," in *The Medical Enlightenment of the Eighteenth Century*, ed. Andrew Cunningham and R. K. French (Cambridge: Cambridge University Press, 1990), 62.

[7] Stott, "Incorporation of Surgeons and Medical Education and Practice in Edinburgh," 78.

[8] See particularly Guerrini, "The Tory Newtonians," Stigler, "Apollo Mathematicus," and Shuttleton, "'A Modest Examination'."

been detected.[9] However, no clear battle lines emerge and how far a loosely conceived "Newtonianism" was at play is subject to debate.[10] There were also unresolved matters regarding the administering of exams, in which the Edinburgh physicians sought to defend their institutional privilege against the city's surgeon-apothecaries.[11] The mudslinging nature of the public dispute in a Scottish intellectual landscape in which religious and political disunion was often decried, but more often indulged in, has placed some of the publications within the context of late seventeenth- and early eighteenth-century satirical literature.[12] However, the rhetorical and often very personal attacks in this pamphlet war have obscured deeper intellectual rifts between Sibbald and Pitcairne.

Much of the historiographical emphasis has been placed on Archibald Pitcairne (or Pitcairn, 1652–1713) who had returned to Edinburgh after having spent a year in Leiden as Professor of Medicine from 1692 to 1693.[13] Pitcairne was prone to engaging in controversial subjects and his belligerence and complex theological heterodoxy have caused Michael Hunter to label him an "almost compulsive controversialist."[14] It was Pitcairne who caused the rift in the physician's community by giving a lecture on the cure of fevers at the meeting of the College of Physicians on 1 November 1694, in which he advocated for a method in the cure of fevers by perspiration based on what he saw as Newtonian principles, a method that many Edinburgh physicians saw as unacceptable.[15] Pitcairne compounded the issue by having his lecture printed a few months later under the title *Disputatio de curatione febrium quae per evacuationes instituitur*.[16]

Pitcairne's tract sparked a bitter pamphlet war, which led to the expulsion of Pitcairne and some of his friends and followers, including the former college president, Archibald

---

[9] Guerrini, *Obesity and Depression*, 44. Cunningham, "Sydenham versus Newton."
[10] Lewis Ashman, "Reception of Isaac Newton in the Scottish Enlightenment: Causation, Gravitation, and the Transformation of Natural Philosophy" (PhD Thesis, The University of Edinburgh, 2023), ch. 1.
[11] Dingwall, *"A Famous and Flourishing Society,"* 67-8.
[12] Stigler, "Apollo Mathematicus."
[13] Anita Guerrini, "Pitcairne, Archibald (1652–1713), physician," *Oxford Dictionary of National Biography* [Online], 2004.
[14] Michael Hunter, "Archibald Pitcairne: Heterodoxy and Its Milieu in Late Seventeenth- and Early Eighteenth-Century Edinburgh," in *Early Modern Universities*, ed. Anja-Silvia Goeing, Glyn Parry, and Mordechai Feingold (Brill, 2021), 291. Alasdair Raffe has shown the complexities of Pitcairne's religious attitudes in "Archibald Pitcairne and Scottish Heterodoxy, c. 1688–1713," *The Historical Journal* 60, no. 3 (2017): 633-57.
[15] Cunningham, "Sydenham versus Newton," 94.
[16] Archibald Pitcairne, *Dissertatio de curatione febrium quae per evacuationes instituitur* (Edinburgh: George Mosman, 1695). Pitcairne, *The Latin Poems*, 12.

Stevenson. Details of the pamphlet war have been treated in the historiography and do not need to be repeated here, but much of the scholarly literature centres on Pitcairne and the use of mathematics in medical practice.[17] Broadly speaking, the slew of publications following Pitcairne's lecture and the expulsion of him and his supporters in 1695 can be roughly divided into Pitcairnian and anti-Pitcairnian, the first advocating broadly and nebulously for the application of mathematical methods in medicine, and the latter against this. The main publications in this first hot phase were the *Tarrugo Unmasked* (1695), by George Hepburn, the *Modest Examination* (1696), probably by John Arbuthnot, and the *Dissertatio de legibus naturalis* (1696), all in support of Pitcairne. The anti-Pitcairnian publications included the *Apollo Mathematicus* (1695), by George Eizat and the *Apollo staticus* (1695), a "hostile translation" of Pitcairne's fever paper, probably also by Eizat.[18]

While Pitcairne's fever tract was important in the subsequent debates, it should be noted that Pitcairne was engaged at this time in other projects which might have drawn the discomfort of some physicians, because they challenged the institutional status quo of the city. Pitcairne had spent the autumn of 1694 campaigning on behalf of his friend Alexander Monteith, a member of the Edinburgh surgeons' college described by Pitcairne as "a good surgeon and anatomist" to allow the town council to grant him liberty to dissect the bodies of the poor that had died at Paul's Work, a "Correction house" at the foot of Leith Wynd.[19] Monteith's initiative was not sanctioned by the senior surgeons, but was granted the dissection license from the town council in October 1694.[20] Subsequently, two dissections were performed in the city, as Pitcairne described, on a young woman and a black man, probably by Monteith.[21] Notably the latter dissection was the first recorded dissection in Scotland of a black person, seemingly with the intent of trying to find the cause of skin colour.[22] Pitcairne himself might have been the driving force behind the dissections, as he

---

[17] A useful overview is Ashman, "Reception of Isaac Newton in the Scottish Enlightenment," 67-75.
[18] Anita Guerrini, "'A Club of Little Villains': Rhetoric, Professional Identity and Medical Pamphlet Wars," in *Literature & Medicine during the Eighteenth Century*, ed. Marie Mulvey Roberts and Roy Porter (London: Routledge, 1993), 233.
[19] Archibald Pitcairne to Robert Gray, 24/25 Oct 1694, *Archibald Pitcairne, The Best of Our Owne: Letters of Archibald Pitcairne 1652-1713, ed. W. T. Johnston (Edinburgh: Saorsa Books, 1979),* 19.
[20] Dingwall, *"A Famous and Flourishing Society*, 53.
[21] Archibald Pitcairne to Robert Gray, 20 Dec 1694, *The Best of Our Owne*, 20.
[22] Pitcairne's ideas of skin colour and race deserve further research, but for the most relevant debates surrounding the cause of black skin colour, see Renato G. Mazzolini, "Skin Color and the Origin of Physical

was keen to support the use of dissections in teaching, and claimed that the dissections of the poor would "make better emprovements, in anatomie, than have been made at Leyden these thrittie years."[23] Pitcairne, who had barely spent a year teaching in the Low Countries thus disparaged both the physicians and the senior surgeons, although later Pitcairne became more closely engaged with the latter, and became an elected member of their college on 16 October 1701. The following year he presented several medical works to their library, a skeleton to their museum and provided "epilogues" at the end of the first public dissections performed. [24]

For Pitcairne, the Edinburgh physicians were too tightly attached to Hippocratic medicine and not open enough to his ideas on iatromathematics, and he convinced other members like George Hepburn and his father-in-law Archibald Stevenson to follow his exile. The centrality of Hippocrates in medical practice was emphasised in the physicians' college lectures, which stipulated that members were to give monthly "ane discourse either upon aphorisme of Hippocrates or any other point of Medicine of his own Chois".[25] Sibbald, whose fondness for Hippocrates Pitcairne mocked in a poem, had taken a less active role in college affairs after his fall from favour due to his conversion in 1685.[26] However, Sibbald's attitude to Pitcairne's mathematical ideas and his engagement with rival medical factions in the city is, at first, unclear. What is common to the published tracts in the dispute – with the notable exception of *De Legibus* – is the sparsity of direct references to Sibbald, the most distinguished member of the party which sought to preserve the privileges of the College of Physicians. Sibbald most often appears as a background figure and is referenced only indirectly. For instance, Hepburn claimed in *Tarrugo Unmasked* to be ignorant of Eizat's authorship of the *Apollo Mathematicus*, but stated that "it's known That the papers which I call *Tarrugo's* were revised, corrected, and approven by one who twice in one year changed

---

Anthropology (1640-1850)," in *Reproduction, Race, and Gender in Philosophy and the Early Life Sciences*, ed. Susanne Lettow (New York: SUNY Press, 2014), 131-61, and Craig Koslofsky, "Superficial Blackness?: Johann Nicolas Pechlin's De Habitu et Colore Aethiopum Qui Vulgo Nigritae (1677)," *Journal for Early Modern Cultural Studies* 18, no. 1 (2018): 140-58.

[23] Archibald Pitcairne to Robert Gray, 24/25 Oct 1694, *The Best of Our Owne*, 19.

[24] Violet Tansey and D.E.C. Mekie, *The Museum of the Royal College of Surgeons of Edinburgh*, 1978, n.p.; Helen Dingwall, *Famous and Flourishing Society*, 53, 57.

[25] The Royal College of Physicians of Edinburgh (RCPE), RCP/COL/2/1/1 [College meeting minutes], 9 November 1693. The importance of these discourses was emphasised by the threat of fines in the minutes for 15 November 1693 and again 6 May 1706.

[26] Pitcairne, *The Latin Poems*, 148.

his Religion."[27] The most direct attack on Sibbald is in the *Modest Examination*, where Sibbald appears mockingly as the "author of the *Opus viginti Annorum*" and the "*Dominus de Cyphis"* (after Sibbald's estate, the Kipps) and a friend of the writer of the *Apollo*.[28] These attacks on Sibbald's religious integrity, the time he spent in natural historical practice, and his persona of a gentlemanly practitioner went to the heart of the identity of the natural historian which he tried to defend in his *Vindiciae*.

Indeed, Sibbald himself, for a long while, did not take an active part in the dispute and refrained from publishing anything directly related to the pamphlet wars until his *Vindiciae* in 1710, partly to avoid the appearance of factionalism.[29] Allegations of factionalism and the creation of philosophical or medical sects were common to both sides of the dispute. George Hepburn, on Pitcairne's side, claimed in *Tarrugo Unmasked* that there was no such thing as a sect among the Astronomers thus showing that the mathematical method of medicine would create unanimous assent.[30] Countering this, George Eizat in the *Apollo Mathematicus*, claimed to detect a new sect among physicians, "I call the *Mathematical*, to distinguish it from the other Sects of Medicine, the *Empirical, Methodical* and *Rational.*"[31] Pitcairne's opening lecture at Leiden had borne the title: "An Oration Proving the Profession of Physic Free from the Tyranny of any Sect of Philosophers," and he saw the mathematical method as the key to this.[32] Labelling the other side as a sect was neither unusual nor novel, but it does reflect genuine anxieties about the unity of a medical community that sought to safeguard and expand its institutional privilege against other players in the medical marketplace.

In a letter to Sloane, Sibbald portrayed himself as above these concerns: "Their heth been a match of scoulding here betwixt some of our young Physitians, I doubt not bot you have

---

[27] George Hepburn, *Tarrugo Unmasked, or an Answer to a Late Pamphlet Intituled, Apollo Mathematicus* ([Edinburgh?], 1695), Preface, n.p.
[28] [John Arbuthnot], *A Modest Examination of a Late Pamphlet Entituled, Apollo Mathematicus* ([Edinburgh], 1696), 22-23.
[29] Sibbald's central role in the dispute has usually been ignored in the historiography, with the exception of Craig, *History of the Royal College of Physicians of Edinburgh*, 414-15, who remarks that Sibbald and Pitcairne as the "principal actors," but notes that their differences were probably engendered by religious and political differences, coupled with the suggestion that both were "intense individualists."
[30] Hepburn, *Tarrugo Unmasked*, 20.
[31] Edward Eizat*, Apollo Mathematicus, or, The Art of Curing Diseases by the Mathematicks According to the Principles of Dr. Pitcairn* (London, 1695), 10.
[32] Stigler, "Apollo Mathematicus,", 5-22.

heard of it."[33] Sibbald's aversion to confrontational publications was reiterated in another letter to Sloane in 1707 which mentioned a "hote paper War here betwixt some of the Colledge and the Chirurgion-Apothecaries," although it is unclear which of the disputes Sibbald refers to here.[34] Sibbald's reluctance to be seen to get openly involved in the debates surrounding Pitcairne was partly conditioned by the gentlemanly rules of conduct shared by Sibbald and Sloane. In his *Memoirs*, Sibbald had stressed that he preferred the "quiet lyfe" of medicine over the factional business of religion or politics, and his decision to pursue medicine had been occasioned by the hope that in medicine "I might be of no faction and might be useful in my generation."[35] Sibbald also projected an aversion to the drink-fuelled tavern discussions associated with Pitcairne's clubs, which Sibbald alludes to in the first part of the *Vindiciae*, and which contrasted with Sibbald's moderate drinking of wine.[36]

Sibbald also seemed to be open to considering the merit of mathematical methods in medicine. The use of mathematics, like chymistry or anatomy, seemed just another modern method which might have its use in supplementing the old. In a letter to Martin Lister written nine months before Pitcairne's expulsion, Sibbald wrote that he admired Lister's use of the "Ancient Method of Curing diseases," and the esteem the London physician held for the ancients, since any modern method needed to be joined to the old.[37] Sibbald then mentioned that Pitcairne had sent Lister his fever tract and was awaiting a reply from him, calling Pitcairne "a Gentleman [who] studies much how Medicine may be improved by other Measures then those the Antients did observe."[38] Sibbald's point cannot have been lost on Lister, but no reply is recorded.

Later that year, Pitcairne himself attempted to convince Lister of his mathematical methods for medicine, although he clad it in terms that showed ancient precedents.[39] Pitcairne told Lister that he intended to publish a new edition of the ancient Greek Cassius Iatrosophista's *Animalibus Medicae Quaestiones et Problemata*, and while many of the

---

[33] Robert Sibbald to Hans Sloane, 21 December 1702, EUL MS Dc 8.35, f. 26.
[34] Robert Sibbald to Hans Sloane, 24 November 1707, EUL MS Dc 8.35, f. 46.
[35] Sibbald, *Memoirs*, 55-6.
[36] Sibbald, *Vindiciae*, 13. Sibbald stated that he only drank very moderately, Sibbald, *Memoirs*, 58.
[37] Robert Sibbald to Martin Lister, 22 Mar 1695, Bodl. MS Lister 36, 116 via EMLO.
[38] Robert Sibbald to Martin Lister, 22 Mar 1695, Bodl. MS Lister 36, 116 via EMLO.
[39] Archibald Pitcairne to Martin Lister, 17 Oct 1695, Bodl. MS Lister 36, 135 via EMLO.

methods in that ancient text should be "idle and useless to physicians … some are useful if rightly followed, & they require numbers."[40] It seems that, overall, Lister was not swayed by Pitcairne, and he found the mathematical methods, and Pitcairne's ideas about bodily hydraulics of little use in medicine.[41] Pitcairne remained broadly on friendly terms with Lister, and in his writings commended Lister's observational anatomical work and his explanation of the forming of intestinal stones.[42] This was not the last time that Lister was threatened to be pulled into the Edinburgh dispute, and in 1708, Lister's acquaintance, the Oxford antiquarian orientalist Thomas Smith (1638–1710) showed himself pleased that Lister remained on friendly terms with Pitcairne. [43] Smith told Lister that Pitcairne had written favourably of him in *De Legibus*, while at the same time "he doe expose Sir Rob. Sibbald's Prodromus Historiae Naturalis Scotiae."[44] Lister, in reply, conceded that Pitcairne's writings were, indeed, ingenious, but methodologically he remained aligned to Sibbald and to the empiricists of his continental training.[45] Writing against Isaac Newton and other mathematicians who tried to apply their methods to medicine, Lister accused them of being "strangely ignorant of ancient and even modern Physic as it hath been improved by anatomy and natural experiments."[46]

4.2 "Laws" of Natural History

Whereas Pitcairne's fever tract did not aim to replace ancient knowledge, the Pitcairnian *De Legibus historiae naturalis* (1696), aimed at more thorough reform. It represented an *ad hominem* attack on Sibbald that was remarkable in its sustained viciousness, accusing Sibbald of gross incompetence in matters of natural history. In *De Legibus*, the writer sought to set up axioms or precepts for natural history, which should show where Sibbald had erred.[47] *De Legibus* began by listing four laws (*leges*: alternatively, precepts or rules), of natural history, before turning to a slew of precise points of attack against Sibbald. The first of these laws took up the anti-sectarian rhetoric, establishing mathematics as the only

---

[40] Archibald Pitcairne to Martin Lister, 17 Oct 1695, Bodl. MS Lister 36, 135 via EMLO.
[41] Roos, *Web of Nature*, 255.
[42] Pitcairne, *Whole Works*, 79, 254.
[43] Thomas Smith to Martin Lister, 18 January 1709, Bodl. MS Lister 37, f. 137 via EMLO.
[44] Thomas Smith to Martin Lister, 18 January 1709, Bodl. MS Lister 37, f. 137 via EMLO.
[45] Martin Lister to Thomas Smith, 22 January 1708, Bodl. MS Smith 51, ff. 57-58 via EMLO [abstract only].
[46] Martin Lister to Thomas Smith, 20 May 1709, Bodl. MS Smith 51 f. 66 via EMLO [abstract only].
[47] "…rationem Naturalis Historiae per axiomata quaedam, aut si mavis, precepta," *Legibus*, 4.

permissible principle: “the writer of natural history should be beholden to no philosophical sect, which does not rely on mathematical principles, that is the principle of certainty, otherwise his motives should be suspect.”[48] The second of the laws attacked Sibbald directly, stating that any author of natural history ought to have visited and known the places described and that Sibbald merely relied on other authors, such as Buchanan.[49] The third law stipulated that the practitioner of natural history should be versed in those studies which allow one to distinguish one body from another.[50] This was a jibe at Sibbald’s supposed lack of anatomical knowledge of the heart’s triangular geometry. Having attacked the precision, experiential and observational credentials of Sibbald’s account of nature, the fourth law was aimed at the consequences which Sibbald drew from his project and its emphasis on indigenous medicine and αὐτάρκεια. It stated that the writer of natural history should not concern himself with problems of greater magnitude, irksomeness and difficulty before having solved the problem of the specific subject of natural history first.[51] That natural history was a problem to be solved served to emphasise the mathematical rhetoric of these laws, axioms and precepts and might be taken partly as a joke. Indeed, the seriousness of intent of these precepts might be considered doubtful, and if *De Legibus* had stopped there, the handful of pages might barely have elicited a response from Sibbald.

However, from these preambles there followed a thorough blow-by-blow attack on the *Scotia Illustrata* and a career assassination attempt that ran to almost one hundred pages. *De Legibus* attacked nearly every aspect of Sibbald’s knowledge of the Scottish natural world, both the details as well as larger cosmological claims. Sibbald, *De Legibus* claimed, relied solely on the testimony of others for his description of Scottish nature, including poetic works, such as John Johnstone’s *Heroes Scoti* (1603), and the questionable part-mythical history of Hector Boece. The *De Legibus* stated that counter to Sibbald’s claim, there existed no other evidence of white wild boars or eagles in Scotland, and the existence of native diamonds, rubies, sapphires and other precious stones was only evidenced via

[48] “Historiae naturalis auctorem nulli Philosophorum sectae, quae principiis Mathematicis, hoc est, certis non nitatur, debere esse illigatum; alioqui fidem ejus esse merito suspectam,” *Legibus*, 5.
[49] “Historiae Naturalis auctorem oportere ea loca peragrasse, eaq: omnia vidisse atq: agnovisse, quorum situs, magnitudines, figuras atque vires defcripserit,” *Legibus*, 5.
[50] “Decere ipsum iis artibus esse instructum quæ docent enarrantque rationem figuras atque facultates corporum unas ab alteris secernendi,” *Legibus*, 6.
[51] “Scriptorem naturalis Historiæ [...] non debere ante absolutum Historiæ suae ad aliud problema delabi majoris & taedii & difficultatis, quodque solvi non potest ante absolutam Historiam,” *Legibus*, 6-7.

hearsay.[52] Counter to Sibbald's assertion there were no live tortoises, and the ambergris found in Scottish seas was carried to the country on the hulls of Dutch ships from the Indies, and thus could not be seen as native to the country.[53] On botany, *De Legibus* claimed, Sibbald had plagiarised from John Ray and others and that he had done so badly without correctly understanding.[54] "Unskilled botanists," *De Legibus* summed up "should not touch natural history. Therefore, it should not have been touched by Sibbald."[55]

De Legibus not only identified Sibbald's supposed faults but also proposed an alternative way for the conduct of natural history. Instead of untrustworthy sources, Sibbald should have consulted with mathematical experts, like Sibbald's collaborator the geometer John Adair, or the professor of mathematics, George Sinclair, whose barometric measurements at Leith Sibbald had included in his *Scotia Illustrata*, but had misunderstood.[56] In his account of the structure of the earth, *De Legibus* stated that Sibbald had relied on untrustworthy authorities like Kircher who had given him the idea that mountains keep the earth's structure from dissolving.[57] But, according to *De Legibus*, Newton had proved that the mountains were the heaviest and densest part of the earth and that Sibbald had ignored the well-known force of gravity (*notissimam gravitatis vim*).[58] The writer of *De Legibus* claimed that in his *Principia*, Newton had demonstrated that the centre of the earth was immovable, dispelling any notion of it dissolving without mountains.[59] That Newton's work was published three years after the *Scotia Illustrata* seems to have been immaterial for the writer of *De Legibus*. Instead, he claimed that had Sibbald not spent so much time at his country estate at the Kipps he would know what even schoolboys ignorant of the law of

---

[52] *Legibus*, 13-15.
[53] *Legibus*, 16.
[54] "Evidens est mutuatum esse Sibbaldum sua ex Raio, at quam infeliciter haec demonstrat tabula, quam qui cunque legerit inveniet Sibbaldo non fuisse intellectam," *Legibus*, 20.
[55] "Botanices imperitus Historiam naturalem attingere non. debuit. Non debuit ergo eam attingere Sibbaldus," *Legibus*, 25.
[56] *Legibus*, 31-2.
[57] *Legibus*, 40.
[58] "At Experientia Neutonusque docent, non extantes montium moles, sed imâ tellure repostas esse gravissimas & solidissimas, ut Sibbaldi more loquar. Vide prop: X. lib:3. principiorum Neutoni. Ignoravit nempe Sibbaldus notissimam gravitatis vim, qua sit ut corpora universa quae circa terram sunt, gravia sint in terram, demonstrante Neutono," *Legibus*, 41.
[59] Book 3 Proposition 10, Isaac Newton, *The Principia: The Authoritative Translation and Guide: Mathematical Principles of Natural Philosophy*, trans. I. Bernhard Cohen and Anne Whitman (University of California Press, 2016), 815. Although, a reader of Newton's text might be hard-pressed to substantiate that claim from that section of Newton's work which concerns planetary movement.

gravity could understand.[60] *De Legibus* also claimed that mathematicians like the astronomer David Gregory, whose methods were so different from those of Sibbald, were the only ones to whom divine wisdom was revealed, countering Sibbald's notion of divine contemplation of nature. [61] Sibbald's preference for indigenous medicine was countered by the assertion in *De Legibus* that Hippocrates, Dioscorides, Celsus and Galen had advocated for the use of exotics in medicine, which seemed to render Sibbald's reference to ancient authorities ineffective.[62]

Apart from the four laws set out at the beginning, *De Legibus* did not set out any mathematical principles or laws of natural history. And while Thomas Smith's gleeful endorsement of the *Legibus* to Martin Lister showed that *De Legibus* received some attention in England, Sibbald seems to have mostly ignored it in public until 1710. The controversy surrounding the issue did not go away, however. In 1709, there appeared an English language pamphlet written under the title *A Letter from Sir R----- S-----, To Dr Archibald Pitcairn*, which attacked Pitcairne and *De Legibus*.[63] This was probably written by Pitcairne's former student William Cockburn, at least according to Pitcairne.[64] While Sibbald seems to have had nothing to do with it, the arguments in the *Letter* foreshadowed some of Sibbald's later responses. The *Letter* denied the premise of *De Legibus* that there should be any connection between being skilled in natural history and skilled in mathematics: "how these two things can be shewn together, or what connection there is between them, I protest I don't understand; I think it would be as easy to shew from the true Method of Writing a Natural History, that he who is the best Shoemaker or Weaver is the greatest Friend to his Country, as from thence to prove, that the best Mathematician must needs be such."[65] Specific points of *De Legibus* were refuted, such as geometrical anatomy and the

---

[60] "Nisi haec gravitatis lex, pueris etiam nota, Cyphianum fugisset, non affirmasset, mineralia & metalla consistere non posse, nisi firma structura, montium sciliscet compage, veluti dolia circinis continerentur," *Legibus*, 41.
[61] "Clarissimo Davide Gregorio contemplor, quae Planetas iis orbitis adscripsit, ad quas nullâ ope Mechanices reduci possènt semel inde vel tantillum dimoti, sèd hæc Sapientiae Divinæ illustrissima monumenta, solisque Mathematicis detecta, Methodum suadent a Sibbaldimâ longè alienam," *Legibus*, 63-4.
[62] *Legibus*, 66-71.
[63] [William Cockburn], *A Letter from Sir R- S-, to Dr. Archibald Pitcairn* (Edinburgh, 1709).
[64] Shuttleton, "A Modest Examination," 54, fn 49, calls Cockburn's motives "obscure". Shuttleton agrees with Cunningham's attribution to Cockburn, which he made in "Sibbald and Medical Education," 158, fn. 12; MacQueen, *The Latin Poems*, 22.
[65] *Letter from Sir R--- S---*, 5-6.

claim that Newton's *Principia* supported the attack on Sibbald's account of the earth.[66] The endorsement of barometric devices for the study of natural history was considered little more than advertising, and the *Letter* suggested that it was odd to place it "in the middle of a Book, which was never to appear in a publick manner."[67] Most of the *Letter*, however, did not concern itself with natural history but rather sought to show flaws in Pitcairne's mathematical fever methods. Sibbald's own response to *De Legibus* was of a different calibre.

4.3 Defending Natural History: the *Vindiciae Scotiae Illustratae*

In 1710, fourteen years after the most vicious attack on his life's work, and a year after Cockburn's *Letter*, Sibbald responded to the allegations levelled against him by publishing the *Vindiciae Scotiae Illustratae*. While he initially attempted to retain his appearance of detachment, especially after Pitcairne had been readmitted to the physician's college in 1704, his reply was prompted by several developments.[68] For one, there was the *Letter from Sir R----- S-----*, which occasioned another tract, written by Pitcairne's friend James Walkinshaw, again in the form of a letter.[69] While Walkinshaw did not blame Sibbald for Cockburn's *Letter*, he defended Pitcairne's method of anatomical geometry and his mathematics and kept the dispute alive in Britain. Around the same time, Sibbald spotted *De Legibus* in a 1710 catalogue by the Rotterdam booksellers Caspar Fritsch & Michel Böhm, still under Pitcairne's name, and he must have been alarmed at the public threat to his reputation on the continent.[70] Sibbald was also still engaged in writing a second volume of the *Scotia Illustrata*, and the continued availability of *De Legibus* threatened to undermine Sibbald's credibility and thus the premise of continuing his natural historical project. Letters to Sloane and his notebook showed that Sibbald had spent considerable effort in trying to publish this second part, with several draft notes and images commissioned for a section on

---

[66] *Letter from Sir R--- S---*, 4-7.
[67] *Letter from Sir R--- S---*, 8.
[68] MacQueen, *The Latin Poems*, 14.
[69] James Walkinshaw, *A Letter from Dr. James Walkinshaw to Sir Robert Sibbald* (London, 1709).
[70] Sibbald, *Vindiciae*, 3. Shuttleton, "A Modest Examination," 54.

marine life.[71] Lastly, Sibbald might have also felt that he was running out of time. In 1708, Sibbald wrote to Sloane that he had entered the sixty-eighth year of his life and that he would "not be long here."[72] By 1714, Sibbald had retired from any engagement in professional matters "because of my greate age, and the infirmities which attende it," and that it was now his "business […] to fit myself to render my spirit to My Master." Sibbald might also have been conscious of a generational change, with many of those naturalists which he saw as practising the same type of natural history as him, dead or retired, such as Andrew Balfour (d. 1694), Robert Hooke (d. 1703), Martin Lister (1639–1712, retired to Epsom 1709), James Sutherland (retired as intendant of the physic garden 1706) and Robert Wodrow, who gave up his studies as a naturalist after 1705.[73] His *Vindiciae* served to defend his generation's conduct.

Outwardly, Sibbald's *Vindiciae* was not directed at Pitcairne directly, and he assured Pitcairne that he accepted his assertion of not having written the *De Legibus*. Throughout the *Vindiciae*, Sibbald referred to the authors of the work against him as *Prodromo-mastiges* ("scourges of the *Prodromus*"), a plural form which avoided blaming Pitcairne but also made it seem like a concerted attack. Sibbald began his tract with an ode to Pitcairne in twelve verses of Sapphic stanzas and included a reference to Pitcairne's treatise on the mathematical method to cure the diseases of the eye.[74] However, just as Pitcairne's denial of authorship was not entirely credible, Pitcairne did not accept Sibbald's false offer of peace. In an angry letter to his friend Robert Gray written in 1711, Pitcairne lamented, "[Sibbald] told me that by My telling him I was not the author of the Dissertatio de legibus historiae naturalis (which he tels indeed and lyes) he meant in alledging this upon me onlie to hinder me from answering him since he in his vindiciae had commended me so much." [75]

---

[71] At times, Sibbald, referred to this project as "De acquatilibus Scotiae," both in his *Auctarium* catalogue as well as to the museum keeper James Paterson to Robert Wodrow, 24 July 1700, NLS *Wodrow Letters Quarto*, vol. I f. 124. In a letter to William Charleton in 1690, he indicated that he considered this a continuation of his *Scotia Illustrata*, "in secolo tomo (quem nunc prelo paro) Scotiae illustratae, qui de Aquatilibus Scotiae agit," Sibbald, *Miscellanea eruditæ antiquitatis*, 87. Plates and drawings for this project are kept in RCPE Archives DEP/ALJ/1, executed by the Edinburgh painter John Alexander and others.
[72] EUL MS Dc 8.35, f. 61.
[73] Roos, *Web of Nature*, 376, Anita Guerrini, "Sutherland, James (c. 1638–1719), Botanist and Numismatist," in *Oxford Dictionary of National Biography* [Online], 2015. for Robert Wodrow, see Chapter VII of this thesis.
[74] Sibbald, *Vindiciae*, Preface, n.p.
[75] Archibald Pitcairne to Robert Gray, 6 January 1711, *The Best of Our Owne*, 66.

Whether Sibbald genuinely believed that Pitcairne was not the author or main contributor of *De Legibus* is hard to establish with certainty, but elements of the *Vindiciae*, as well as some of Sibbald's notes seem to suggest that Sibbald blamed Pitcairne for the work, at least in private. In Sibbald's catalogue of manuscripts, compiled at an unknown date, he included a now-lost tract "D: Arch, Pitcarnij animadversiones in Prodromy Historia Naturalis editum ab R.S. MD 1 sheets 4to" beneath a listing for what appears to be an early draft of the *Vindiciae*.[76] Sibbald also sent Pitcairne three copies of the *Vindiciae*, which Pitcairne distributed among his friends, but whether this was a peace offering or a provocation is hard to know for certain. [77] It is doubtful that the *Vindiciae* gained the volume of readership that *De Legibus* seems to have achieved, and it is usually found only bound together with other tracts. [78]

The *Vindiciae* is not a particularly coherent text, and its somewhat disorganised structure indicates that Sibbald might have written its thirty or so pages in a hurry. However, Sibbald spelt out clearly what was at stake for natural history, and in the *Vindiciae*, he defended both the method of the *Scotia Illustrata* and the accuracy of its claims. The text also shows Sibbald's continued commitment to a humanist medical scholarship that drew on continental models, even though the challenges from the iatro-mathematicians were serious in a fractured medical institutional climate.

Sibbald saw in the attack on his *Scotia Illustrata* a threat not only to his reputation but to the entire international enterprise of natural history. He saw himself in a continuum of scholarship that stretched from antiquity to the present: "It is, therefore, neither brave nor noble for men to suffer such insults, but rather to defend honour and fame against these slanderers hiding under the guise of this booklet on the laws of natural history, in which not only the author of the *Prodromus* is denounced, but also everyone, ancient and modern, who has written on natural history in the same method that was used by the author of the

---

[76] NLS Adv. MS 33.3.16, 24v.
[77] Archibald Pitcairne to Robert Gray, 6 January 1711, *The Best of Our Owne*, 66.
[78] Robert Sibbald, *Tractatus varii ad Scotiæ antiquæ & modernæ historiam* (Edinburgh: Andrew Simpson, 1711).

Prodromus."[79] Sibbald also emphasised that his way of doing natural history was an international enterprise and he quoted extensively from reviews of his work among the most prominent learned journals of the European Republic of Letters, the Royal Society's *Philosophical Transactions*, the *Nouvelles de la Republique des Lettres* and the *Acta Eruditorum*.[80] Pointing out the value of his own work, he noted that Paul Boccone, in his *Siculus* had described his work as a model which might be applied to a natural history of Sicily.[81]

Sibbald was aware that support for his work in his own country was more lukewarm, and he could only show favourable reviews from William Nicholson's "Scottish Historical Library" (1702) and the approbation given by Sibbald's colleagues at the College of Physicians, Archibald Stevenson and Andrew Balfour, both of whom had died by the time the *Vindiciae* was published.[82] Indeed, Sibbald stated that the success the *Prodromus* had received abroad had engendered envy at home among syncretists who had placed medical apprentices in their workshops, and who were later joined by medical doctors and teachers.[83] This might be seen as an attack on the ascendant rival medical institutions in the city, like the surgeons, which had ruptured the unity of the medical profession and were exploited by people like Pitcairne. Sibbald also noted that there were satirical songs and poems directed against him in Edinburgh taverns.[84] Elsewhere in the work, Sibbald noted that his detractors proposed fallacies which were twisted by "wine and hatred."[85] This seems a thinly veiled reference to Pitcairne who was known to frequent establishments like the *Greping-office*, a gloomy tavern located in a dark passageway behind St.Giles Cathedral.[86] It also indicates that Sibbald saw a lack of support in his own country as well as a suitable space for polite

---

[79] "Idcirco, cum nec fortis nec generosi viri sit contumelias pati, decoris & famae vindicias suscepti, contra calumniatores sub larva libelli de legibus Historiae Naturalis latentes, quod in hoc libello non solum proscribatur Prodromi author, sed etiam quotquot veteres et moderni de Historia Naturali hactenus scripserint, qui eadem method scribunt qua Author Prodromi usus est…," Sibbald, *Vindiciae*, 4.
[80] Sibbald, *Vindiciae*, 1-2.
[81] Sibbald, *Vindiciae*, 2.
[82] "…Vino & Ira torti…," Sibbald, *Vindiciae*, 13.
[83] "Invidi tamen quidam qui cum artis ministris συγκρητισμὶν inierant, quod in illorum officinis prima medicinae tyrocinia posuissent, cum illos ureret Prodromi, apud exteros praesertim, applausus… Conspirarunt igitur praedicti medici cum artis ministris, ascitis in auxilium Paedagogis quibusdam," Sibbald, *Vindiciae*, 3-4.
[84] "ipsae Popinae (in quibus frequenter conciliabula nabebantur de me opprimendo) Cantilenis Satyricis & convitiis in me perstrerebant," Sibbald, *Vindiciae*, 4.
[85] Sibbald, *Vindiciae*, 2.
[86] Pitcairne, *The Latin Poems*, 318-9.

discourse.

Sibbald presented his vision of medicine and natural history in opposition to those who rejected ancient Galenic-Hippocratic methods in favour of a radical reform of the discipline, particularly those who saw the primacy of mathematics as the foundation for all medical knowledge. Archibald Pitcairne, in his oration given at Leiden in 1692 had emphasised that empirical observations should be the basis for medical practice, a sentiment which was not that far removed from those physicians like Sibbald who had enjoyed a Leiden training as well.[87] However, Pitcairne, and later participants in the Edinburgh dispute had also stated that mathematics was to be the final arbiter in all decisions and that it "is not allowable to advance any Thing into a Principle either in the Theory or Practice of Physic, which the Mathematicians, and Persons who are the least entangled with Prejudice, call in question," as Pitcairne had claimed in his Oration at Leiden in 1691.[88]

In his response in the *Vindiciae*, Sibbald was keen to point out that he did not reject mathematics altogether and that, indeed, he "felt honourably" about the mathematical disciplines, as he had shown in his own writings.[89] He pointed out that in his 1706 Commentary on Hippocrates Letter to Thessaly, which was to advertise his course in medicine, he had praised the utility of mathematics in medicine.[90] Here, Sibbald had emphasised that Hippocrates had granted the usefulness of geometry to explain the working parts of the human body, and of arithmetic to allow the physician to calculate periodicities in fever.[91] In modern times, other mathematical methods have become useful, for instance in the devising of new medical instruments. [92] In his commentary, Sibbald also listed mathematicians who had shown the use of mathematics in medicine, including Boyle, Borelli, Malpighi, Bellini, Perrault, Newton, Huygens, Mariotte, Baglivi, Thomas White, the Scot James Gregory, and Descartes. Notably, however, Pitcairne's name was absent from

---

[87] Archibald Pitcairne, "An Oration Proving The Profession of PHYSIC free from the Tyranny of any Sect of Philosophers," in Archibald Pitcairne, *The Whole Works of Dr. Archibald Pitcairn*, trans. George Sewell and John Theophilus Desaguliers (London: E. Curll, J. Pemberton, and W. and J. Innys, 1727), 5-22.
[88] Pitcairne, "Oration," 8.
[89] "scirent me honorifice sentire de mathematicis disciplinis, ut qui edito in Hippocratis epistolam ad Thessalum filium commentario, insigne matheseos momentum & magnam ejus utilitatem in medicina ostendetam," Sibbald, *Vindiciae*, 4.
[90] Translated in Cunningham, "Sir Robert Sibbald and Medical Education," 141-157.
[91] Cunningham, "Sir Robert Sibbald and Medical Education," 153.
[92] Cunningham, "Sir Robert Sibbald and Medical Education," 155.

that list. Even Cartesian iatromechanics had their uses and in a striking concession to Descartes' ideas, Sibbald stated "since the greatest part of the body is made up of channels through which fluids flow, Mechanics – which considers the figures of these channels and their oscillatory property – presents outstanding uses to physicians, for it demonstrates that the human body is a machine [...]."[93] In the commentary, Sibbald had adapted Herman Boerhaave's *Oratio de usu ratiocinii mechanici in medicina* (1703) in stating that "mechanics – which considers the figures of these channels and their oscillatory property – presents outstanding uses to physicians, for it demonstrates that the human body is a machine which consists of various organs."[94] Mathematics and mechanics were, however, merely methodological aids to medicine, and could not be a replacement for Hippocratic-Galenic knowledge.

With regard to natural history, the use of mathematics was even more limited. Sibbald mocked the *Prodromo-mastiges* who, he said, had claimed that all writers of ancient and natural history were ignorant of mathematics. They only excluded Descartes from their scorn, according to Sibbald, because in their words he had shown in his *Treatise on Man* (1662) the successful application of mathematical principles in medicine.[95] This was a further provocation against iatro-mathematicians like Pitcairne who saw in Descartes exactly the kind of philosophical practitioner of medicine against which tracts like Pitcairne's *Oration* had been directed.[96]

While not professing much skill in mathematics himself, Sibbald rejected the language of laws and mathematics, of hypotheses and axioms altogether.[97] In the *Vindiciae*, Sibbald mocked the supposed accuracy of the mathematicians who had wilfully misrepresented his argument by providing inaccurate information.[98] In another passage, Sibbald admitted the

---

[93] Cunningham, "Sir Robert Sibbald and Medical Education," 154. The Brackets are Cunningham's.

[94] Cunningham, "Sir Robert Sibbald and Medical Education," 154, 161, fn 64a-b.

[95] "Excepto *Cartesio*, qui tractatu suo de Homine, hoc fundamine nixus mira praestit," Sibbald, *Vindiciae*, 7.

[96] John Henry, "The Reception of Cartesianism," in *The Oxford Handbook of British Philosophy in the Seventeenth Century*, ed. Peter R. Anstey (Oxford: Oxford University Press, 2013), 116-43. Cunningham described Pitcairne's "Oratio" as a "frontal assault on Cartesian physiologists," in "Sydenham versus Newton," 89; Lewis Ashman described Pitcairne's attitude to Newton's philosophy as an "antidote to the poisonous tradition of false philosophy represented by ancients like Aristotle and moderns like Descartes," in "Reception of Isaac Newton," 54.

[97] For an analysis of Newton's flexible use of this type of language in natural philosophy, see Dmitri Levitin, "Newton on the Rules of Philosophizing and Hypotheses: New Evidence, New Conclusions," *Isis* 112, no. 2 (2021): 242-65.

[98] "Haecne ἀκρίβεια Mathematica est," Sibbald, *Vindiciae*, 9

lack of his own mathematical skill to fulfil the office of geographer but stated that for the drawing of maps for his geographical work, he had employed the skills of John Adair, "*mechanicus*."[99] Sibbald and Adair had worked on the *Scotia Illustrata* together, and despite disputes over the project, had remained on friendly terms.[100] However, both had methodological differences in geographical matters, with Sibbald relying on chorographical enquiries in defining the shape of Scotland, and Adair using geometry and cartography in an attempt at deriving a more "true" shape of the country. [101] Sibbald's comment on Adair relegated his mechanical skill to that of a craftsman, and by extension mathematics to a useful tool, but not a discipline that should surpass its explanatory remit to include natural history. As for hypotheses, Sibbald made his thoughts clear in a letter to Sloane: young physicians at Edinburgh were too enamoured with them and Sibbald wished "they did apply themselves more to observation than dispute and inventing of new Hypotheses."[102] In the *Vindiciae*, Sibbald claimed that he had eschewed hypotheses when writing the *Scotia Illustrata*. He stated that in talking about the composition of the earth, he had adopted the ideas of Kircher's *Mundus Subterraneus*, which was then in fashion, as well as Bernhardus Varenius's (1622–1650) work.[103] Certainly now, Newton's *Principia*, as well as the observations by Edmond Halley and the Scot James Wallace on the motion of the tides had added new information.[104] However, Sibbald claimed that he had been conscious of how uncertain the old hypotheses were and had rarely expressed his own opinion on them, but instead had always attempted to show empirical truth.[105] Sibbald's claim that he had

---

[99] "Ego quidem me imparem sentiebam officio Geographi, quod in mathesi parum versatus essem, id autem quod in me deficiebat, supplebat D. Adair Mechanicus egregius, cui Mappas adornandi labor commissus a Senatu Regio fuit," Sibbald, *Vindiciae*, 11.
[100] Charles W. J. Withers, "Adair, John (1660–1718), geographer and cartographer," *Oxford Dictionary of National Biography* [Online], 2004. Sibbald and Adair might even have shared town lodgings in the early 1700s, as indicated in the diary of the Edinburgh surgeon Thomas Kincaid (1661–1726), NLS MS Adv. MS 22.2.10, entries for 23 June 1703 and 19 Dec 1704.
[101] Charles W. J. Withers, "Reporting, Mapping, Trusting: Making Geographical Knowledge in the Late Seventeenth Century," *Isis* 90, no. 3 (1999), 497-521.
[102] Robert Sibbald to Hans Sloane, 21 Dec 1702, EUL MS Dc 8.35, f. 26.
[103] "Et cum tum temporis in magna fama esset Kircheri mundus subterraneus, et Vareni generalis Geographia ab Isaaco Neutono recognita, et plurimis in locis emendata, in qua affectiones generales telluris explicantur, summo in honore apud doctos esset," Sibbald, *Vindiciae*, 5-6.
[104] "nondum enim prodierant Neutoni Principia Philosophae, aut Wallisii & Haleyti de motu maris accuratae observations," Sibbald, *Vindiciae*, 6.
[105] "Cum itaque tum parum constaret de principiis philosophiae cum Prodromum scriberem, ego conscius quam essent incertae Hypotheses tunc notae, raro meam opinionem interponebam, veritati ostensae semper litaturus," Sibbald, *Vindiciae*, 6.

avoided any sort of hypotheses included theories that were taken up by the mathematical physicians in Edinburgh. On the motion of the earth, the *Scotia Illustrata* had given no verdict, Sibbald stated, but neither had the Psalms given any speculation on physical causes.[106] No one could accuse the *Scotia Illustrata* of any bias as to whether this motion was caused by the stars, as claimed by some astronomers, or whether this was due to the force of gravity and the centripetal force, as the great Newton taught in his doctrine.[107]

While it was technically true that Sibbald did not spell out whether he followed the philosophical ideas he presented in the *Scotia Illustrata*, his critics might have considered his defence at best evasive, and at worst, misleading. Notably, in the entire *Vindiciae*, Sibbald did not mention the natural philosophical ideas he had expressed, nor any of his thoughts derived from Stoic and Galenic environmental ideas, and on ancient writers like Seneca, he merely noted that he selected them among two hundred authorities, who were free of prejudice.[108] Even Sibbald's claim of the *autarkeia* of Scotland had to be sacrificed to satisfy his critics. This idea had been attacked in the fourth law of *De Legibus*, which pointed out that concepts such as self-sufficiency could not be proven in the absence of complete knowledge of the natural productions of a country.[109] When it came to disease, how could anyone who does not know all of Scotland's nature be certain of Scottish *autarkeia* and be certain that all native diseases could be cured by native remedies?[110] This was somewhat a logical trap: since complete knowledge of nature was not attainable, no one could ever make the case for any concepts deriving from natural history and inductive reasoning from natural history was impossible. Sibbald's reply to this challenge in the *Vindiciae* was evasive: his *Prodromo-mastiges* detractors had wilfully misunderstood him.[111] He had not mentioned

---

[106] "Neque enim Author prodromi in animo habuit, vel motum terrae asserere vel negare; nam ibi longe abest Psaltes a speculatione causarum Physicarum," Sibbald, *Vindiciae*, 13.
[107] "...nec Authoris Prodromi verba evertunt, quae astronomi quidam docent de orbis terrae motu per sidera: nec Nobilem Clarissimi Neutoni doctrinam de gravitatis vi, aut vi centripeta evertunt ab Authore Prodromi allata...," Sibbald, *Vindiciae*, 13.
[108] "Hos, in Prodromo meo, duces ego secutus sum, & horum exemplo ex ducentis (quos habeo) Historiae naturalis scriptoribus multa excerpsi, qui etiam omni praejudicio liberi," Sibbald, *Vindiciae*, 29.
[109] "Non absolvisse Sibbaldum nec exegisse naturalis Historie opus res ipsa ostendit & ipse saepius agnoscit , dum incertu esse se ait & nescire an animalia, mineralia & metalla quae describit in Scotia reperiantur," *Legibus*, 7.
[110] "Not potuit ergo astruere αὐτάρκειαι patriae suae, multo minus cuiusvis regionis, quod tamen molitur. Nec enim pro certo quis adfirmaverit Scotiam morbis nostris profligandis idonea medicamenta proferre, qui non omnia norit per omne Scotiam nascentia," *Legibus*, 7.
[111] Sibbald, *Vindiciae*, 9.

self-sufficiency in the title of the work, and nowhere had he claimed that all disease might be cured with native remedies and he challenged his detractors to show where he said such a thing. [112] Indeed, this claim smacked of the sophistry that the mathematicians accused him of having studied during his undergraduate studies at Edinburgh.[113]

Sibbald summed up his attack against him in language that evoked a defence against fanatical sectarianism and political tyranny. Pitcairne, in his Leiden oration, had employed similar words when he claimed that medicine was under the tyranny of philosophy. However, according to Sibbald, it was not the philosophers, but the mathematicians who sought to subjugate others with their laws. Sibbald described those who blindly followed the dictator's laws as proposed in *De Legibus* as a "society of rope-dancers."[114] Against this, Sibbald advocated for resistance of the learned, who should question unjust dictatorial edicts: "Why do they have such insolence? Why such impiety? Are they sanctioning these laws and acting unrestrainedly as they wish? Have they given you laws, and will we comply with them? It is insanity that ravishes you, or crime, or madness?"[115]

Against these attempts to replace natural historical practice with mathematical laws, Sibbald set the positive empirical virtues of the natural practitioner, free from hypotheses and laws and firmly committed to observation. Whereas the *Memoirs* had served as a private accounting of Sibbald's life in light of his misjudged conversion to Catholicism, the *Vindiciae*, which repeated many of the same biographical details, served to justify his life as a naturalist. Sibbald claimed to embody observational virtues, and that other learned men could vouch for him. He railed against the suggestion that he had only relied on second-hand observations and barely seen Scotland during the twenty years in which he compiled his work, which had become the mocked *viginti annos* of his detractors.[116] Even though his own affairs and political unrest sometimes proved a hindrance, he had made excursions into

---

[112] "Si quidem titulus fuisset Αυτάρκσα Scotiae, iocus fuisse argumento adducto: sed tantum absit ut hic sit operis titulus ut nullibi in Prodromo asseratur ea esse apud nos remedia quae omnes Scotiae incolarum morbos curare possint," Sibbald, *Vindiciae*, 9.
[113] "Ego ex dialectica (quam solam per quinquennium, me in Academia patria didicisse vult) hoc dicerim, sophisma esse a dicto secundum quid, ad dictum simpliciter," Sibbald, *Vindiciae*, 9.
[114] "Leges tulit Dictator Et socii νευροβάτοι assensere," Sibbald, *Vindiciae*, 8.
[115] "Quid sibi tantum arrogant? quid hoc nefas?/ Hi jura sancient, resolventque ut volunt?/ Leges dabunt vobis, & his parebitis?/ Quae vos rapit dementia, aut culpa, aut furor?/ Ab Universo Orbe Eruditorum exclamatum est," *Vindiciae*, 8. Sibbald seems to have taken these lines from a life of the English Cardinal Reginald Pole by Antonio Maria Graziani, *De Casibus virorum illustrium* (Paris: Antoine Cellier, 1680), 218.
[116] Arbuthnot, *Modest Examination*, 22-3; MacQueen, *The Latin Poems*, 362.

different parts of the country and had collected observations from islands in the Firth of Forth, as well as from different mines and caves, as everyone could attest.[117] Sibbald also stated that he maintained correspondence with numerous erudite men, and the professor of botany, James Sutherland, with whom Sibbald had cultivated plants at his home in the Kipps, could bear witness to that. [118] Additionally, he emphasised that he was in constant contact with sailors who brought him specimens of marine life.[119] His education in Edinburgh, which included his reading of Digby and White, Descartes and Gassendi, and his practical experience on the continent supplied further evidence of his skill.[120] The suggestion that Andrew Balfour had told the writer of *De Legibus* that Sibbald's work was defective was countered by Sibbald by stating that it was "madness to raise the spirit of my dead kinsman," and that Balfour was on the continent when he was meant to have made this statement.[121] Sibbald countered accusations of inaccuracies in describing Scottish nature by inviting the author to check the facts themselves, and his own natural history collections helped in this type of proof. In response to the accusation that Sibbald falsely claimed marine tortoises to be native to Scotland, he stated that a specimen of a tortoise was sent to him from Orkney and that the shell of this animal could be seen among other rarities in the Edinburgh University college hall, "as a gift from me."[122] If that was not enough, the *Prodromo-mastiges* could go into the suburban gardens of a certain Mr Blair where a tortoise had lived happily for several months.[123] Sibbald provided a host of other

[117] "Fateor ingenue multum abfuisse, quod totam Scotiam, insulasque ad eam pertinentes peragrarem, cum nec res meae, nec tumultus in regno, id permitterent; in varias tamen regni regiones me excursus fecisse, & quam potui diligenter, observationes fecisse de materia Prodromi & descriptione Regni norunt omnes; imo insulas in Forthae Aestuario peragrasse: Antra & Fodinas quasdam ingressum fuisse," Sibbald, *Vindiciae*, 12.
[118] "Commercium etiam literarium cum viris eruditis & ejusmodi rerum peritis per universum regnum habuisse, novit Dominus Jacobus Sutherlandius, qui mecum per aestatem & autumnum Anni (si bene memini) 1673," Sibbald, *Vindiciae*, 12.
[119] "Cum autem aquae nostra aquaticis animalibus omnis generis abundarent, perpetuum commercium cum piscatoribus habui, qui rariora quaeque animalia aquatica, vel integra vel partes eorum ad ne deferebant," Sibbald, *Vindiciae*, 10.
[120] "Nec solum Aristotelem legebant Alumni, sed & liberiori Philosophiae in privatis studiis operam dabant, et legebant Cartesii quaedam opuscula, & Gassendi quaedam, et Thomae Angli, Digbaeique doctrinam Corpulcularem, haecque praelibaverat Pro dromi Author antequam in regiones exteras abiret," Sibbald, *Vindiciae*, 10.
[121] "Sed quae insania est solicitare Manes Consanguinei mei D. Balfuraei, ut calumniam istam confirmarent?," Sibbald, *Vindiciae*, 11.
[122] "Testam unius mediocris quantitatis, vivae in Orcadas delatae, ad me misit D. Mackenzius, Episcopi Orcadum filius & officialis (ut nostri vocant) Comnissarius, quae ex dono meo in Aula superiore Academiae Edinburgensae inter alia rariora conspicitur," Sibbald, *Vindiciae*, 21.
[123] "Vidi etiam testudinem vivam in horto suburbano cujusdam Blari dicti, quae ibi per multos menses vixit," Sibbald, *Vindiciae*, 21.

such evidence for his credibility, from both written sources as well as assertions by other learned and unlearned persons that supported his credibility as a naturalist.

What the *Prodromo-mastiges* lacked were any substances to their claims, not only did they behave like dictators, but they were also unable to show anything new. Sibbald made this point by including, in the *Vindiciae*, an invective poem that he took from an earlier humanist dispute between the French classical scholar Claude Saumaise (1588–1653) and the Jesuit theologian Denis Pétau (1583–1652). Sibbald's choice of this poem shows that he saw himself as part of a philological humanist tradition which stretched back a century and that he saw his current dispute against the mathematicians as replaying an earlier dispute against *novatores*. It is worth spending a few pages on this poem to illustrate not only the depth of Sibbald's commitment to this continental tradition but also to consider the long shadow of humanist philological virtues:

Dum se his fictionibus & falsimoniis mire placent nostri *Prodromomastiges*, produnt se esse *Salmasii* Cercopithecos et Simias de quibus hoc judicium cecinit.

Cum depilatis natibus et facie improba,
Malaque mente monstrum Cercopithecium
Miros se ludos ostensurum dixerat
Non ante visos, & diem condixerat
Conveniunt omnes Cercopitheci, Simiae:
Clurinae pecudes: omne genus cercopium,
Quae sunt caudatae: quae sine caudis ambulant
Similes hominibus bestiae turpissimae.
Tunc Simiorum caetus [=coetus] cum esset maximus,
Erat inter illos ingens exspectatio,
Quidnam editurus & miri & novi foret
Tam grandium minaetor ille Simius.
Ergo ut promissis facerit & dictis fidem,
Proceram cum legisset in campo arborem
Quam vidit unam celsiorem caeteris,
Hanc subito ascensu aggressus petere protinus,
Altum arrependo ut arriperet fast[i]gium;
Sperans se et Coelum posse sic contendere.
Verum cum magno nisu magnis viribus,
Sudans, laborans, aestuans ut scanderet
Summum ad cacumen jam venisset arboris,
Ac se videret non posse ultra progredi,
Cutum ostentare caepit & turpes nates,
Derisuíque spectatoribus fuit.[124]

While our Prodromomastiges are wonderfully pleased by these fictions and falsehoods, they reveal themselves to be Salmasius' Cercopithecos and apes on which he sounds this judgement.

With bare buttocks and a wicked face,
and evil mind, the monstrous Cercopithecos,
promised to show wonderful diversions,
not seen before, and he appointed a day
for all Cercopitheci and apes to assemble:
The simian herd: all types of primates,
those who walk with tails, and those without,
ugliest beasts yet akin to humans.
Then, when the crowd of apes was at its largest,
there was among them great anticipation,
what new and wonderful things would be brought forth
by such a great threat as was this ape.
Then, after having made promises, and gathered faith,
he chose a tall tree in the forest,
and when he saw one taller than the others,
he immediately proceeded to ascend it,
He crept upwards to seize the height;
Thus hoping he could contend the Heavens.
But when, with great labour and great strength,
sweating, toiling, burning from the climb
he came to reach the highest peak of the tree,
and he saw he could not go any further,
he showed his naked skin, and foul buttocks,
and all who saw laughed at him.

[124] Sibbald, *Vindiciae*, 14.

Saumaise's poem first appeared in the final pages of the *Confutatio Animadversorum Antonii Cercoetii*, which he had published in 1623 under the pseudonym Franciscus Francus.[125] The work was, like Sibbald's *Vindiciae*, written in response to an attack on the eminent philologist by the Jesuit scholar Pétau. The issue concerned *De Pallio*, a third-century oratorio written by the Church Father Tertullian on the philosophical Roman cloak. The text, which has been described as "the hardest text in the Latin language," engendered an intense antiquarian and philological discussion among continental humanist scholars at the turn of the seventeenth century.[126] Saumaise had written a 500-page commentary on *De Pallio* in 1622, in continuation of the antiquarian scholarship of his teacher Isaac Casaubon (1559–1614).[127] For Casaubon, Saumaise and other continental humanists like Joseph Scaliger, antiquarianism was a philosophical tool, the use of which dated back to antiquity, which was evident in Tertullian's text. This method relied on *historia* and privileged practice over theory in the study of the classics.[128] The difficult text of *De Pallio* not only raised methodological questions surrounding antiquarian studies but also laid bare concerns about disciplinary boundaries between humanist antiquarianism and theological writers such as Pétau.[129] The French Jesuit, writing under the pseudonym Kerkoëtius, accused the Calvinist Saumaise of not only venturing into territory that should be reserved for the clergy but also of sloppy scholarship.[130] In response, Saumaise attacked Pétau and claimed that it was not grammar but theology that had overstepped its boundary and that "the theologians are those who lust after the grammarians' wives, the *artes humaniores*, while the grammarians do not in the least covet the bristly province of scholastic theology."[131] Saumaise had planned to counter accusations of questionable chronology and

---

[125] Franscisco Franco [=Claude Saumaise], *Confutatio Animadversorum Antonii Cercoetii ad Claudii Salmasii notas in Tertullianum de pallio* (Middelburg: Simon Moulert, 1623), 269.
[126] Marcello Cattaneo, "Between Antiquarianism and Satire: Tertullian's De Pallio in the Age of Confessions, c. 1590–1630," *Erudition and the Republic of Letters* 5, no. 2 (2020), 117-8, citing the Latininst, Eduard Norden.
[127] Cattaneo, "Between Antiquarianism and Satire," 125.
[128] On the development of *historia* as a methodology in antiquarianism and natural history, see Gianna Pomata and Nancy G. Siraisi, "Introduction," in *Historia: Empiricism and Erudition in Early Modern Europe*, ed. Gianna Pomata and Nancy G. Siraisi, Transformations (Cambridge: MIT Press, 2005), 1-38.
[129] Cattaneo, "Between Antiquarianism and Satire," 119.
[130] Cattaneo, "Between Antiquarianism and Satire," 152-3. Antonius Kerkoëtius Aremoricus [=Denis Pétau], *Animadversorum Liber ad Claudii Salmasii Notas in Tertullianum de Pallio* (Paris, 1622)
[131] Cattaneo, "Between Antiquarianism and Satire," 158.

flawed scholarship by having his friend in Marseilles, the antiquary Nicolas-Claude Fabri de Peiresc, make a mantle among the antiquities "where Greek was once spoken."[132]

Saumaise's main weapons were, however, his words, and in his response to Pétau, he ended with the above poem, which is a rather blunt parable for the hubris of those who – believing themselves to be better than their peers – fail to show anything wonderful and new (*miri et novi*) and instead expose their nakedness to the assembled crowd. The *cercopithecos* of the poem was Strabo's and Pliny's term for a species of long-tailed monkey native to Ethiopia and became the name for any tailed monkey as opposed to the tailless *simia*, according to the early modern authority on the subject, Edward Tyson.[133] Joseph Scaliger, who was fond of using animal terms to disparage opponents, had used the term *cercopithecus* to deride his adversaries.[134] Scaliger's disciple Saumaise undoubtedly delighted in the wordplay afforded by the association with Petau's nom-de-plume Kerkoëtius, and calls his foe "*Petavius cercopithecus.*"[135] In the poem, the tail of the *cercopithecos* obscures the fact that beyond the cosmetics, there was no substance to the claim of the *novator*, who remains part of the simian herd.

The attraction of this poem for Sibbald is clear, not least because the subject of debate, Tertullian's *Pallio*, remained a literary interest into the late seventeenth century and the dispute between Saumaise and Pétau dispute remained so well known that Pierre Bayle could criticise its vehemence in his *Dictionnaire Historique et Critique*, written between 1697 and 1702.[136] Furthermore, the language and issue of the continental humanist dispute could easily be translated to the situation at Edinburgh. Sibbald was intimately familiar with both Saumaise's and Petau's work from his works on antiquarian matters, and he had studied at Leiden under the generation of men like Vorstius who were admirers of men like Saumaise, Casaubon and Scaliger. Sibbald modelled his natural and civil history on these continental

---

[132] Cattaneo, "Between Antiquarianism and Satire," 123,

[133] Strabo, *Geography*, 15.1; Pliny the Elder, *Natural History*, 8.72; Edward Tyson, *Orang-Outang, Sive Homo Sylvestris: Or, The Anatomy of a Pygmie Compared with That of a Monkey, an Ape, and a Man* (London: T. Bennett and D. Brown, 1699), 5. Sibbald had met Tyson in 1686, Sibbald, *Memoirs*, 92.

[134] Dirk van Miert, "Scaliger's Abusive Language: A Glossary," The Warburg Institute [Online], accessed 10 May 2022, https://warburg.sas.ac.uk/research-projects/archived-research-projects/joseph-justus-scaliger-correspondence/scaligers-abusive-language.

[135] [Saumaise], *Confutatio*, 245.

[136] Cattaneo, "Between Antiquarianism and Satire," 161.

humanists and employed Saumaise's work in his *Scotia Illustrata* and elsewhere, calling him the "great Saumaise" and "most learned Saumaise," and showing that many previous errors had been corrected by his philological scholarship.[137] Sibbald also employed similar practical methods in antiquarianism as the Dutch scholar and he believed that in the absence of written records, "the only sure way to write History, is from the Proofs, [which] may be collected from such Monuments," as archaeology could provide.[138]According to the 1722 catalogue of Sibbald's library, he had at least eighteen of Saumaise's works among the over 5000 volumes, including the unaltered 1656 Leiden reprint of Saumaise's edited and annotated version of *De Pallio*, originally published in 1622, although Saumaise's *Confutatio*, in which the disparaging poem is found, is surprisingly missing from the catalogue.[139]

In *De Legibus*, Saumaise's leader of the c*ercopitheci*, the great threat (*grandium minaetor*) of Pétau became the great leader of the mathematical simians, which referred undoubtedly to Pitcairne. As Pétau had used theology, the *Prodromo-mastiges* used arbitrary laws. The tall tree of theological learning turned into the tree of mathematical method. As Pétau had criticised Saumaise's empirical textual accuracy, the *Prodromo-mastiges* had scorned Sibbald's claims as false and baseless. Mathematical methods were as intellectually naked as scholastic theology and the higher both aimed to climb, the more evident this became. Both the philological dispute and the controversy surrounding *De Legibus* concerned the transgression of disciplinary boundaries. Sibbald's assertion that mathematics had its practical use in medicine, but that it should not encroach into the realms of natural history, reads like the grammarians' warning against the covetousness of the theologians.

Sibbald found in Saumaise a long-dead ally that helped him find the correct register against a learned Latin foe. Unlike most of the other tracts of the Edinburgh dispute, *De Legibus* and Sibbald's *Vindiciae* were not published in the vernacular, but rather in Latin, as

---

[137] Saumaise's his edition of Solanus, and his commentary, the *Pliniae Exercitationes* appear in the reference list for the *Scotia Illustrata*, as does Petau's chronological works, *Scotia Illustrata*, pars 1 lib. 1, 13. *Scotia Illustrata*, pars 1 lib. 1, 41. In his text on the *karemile*, Sibbald included Saumaise's corretions of Pliny with the words "the most learned Salmasius has corrected this passage quite ingeniously, " Sibbald, *Miscellanea eruditæ antiquitatis*, 18.

[138] On Sibbald's Antiquarianism, Williams, *The First Scottish Enlightenment*, chapter 5; and Alan Montgomery, *Classical Caledonia: Roman History and Myth in Eighteenth-Century Scotland*, *Classical Caledonia* (Edinburgh: Edinburgh University Press, 2022), chapter 1. Robert Sibbald, *Historical Inquiries: Concerning the Roman Monuments and Antiquities in the North Part of Britain Called Scotland* (Edinburgh: James Watson, 1707), a2.

[139] *Bibliotheca Sibbaldiana*, 17. I.M.L. Donaldson, "Ex Libris: The Sale Catalogue of Sir Robert Sibbald's Last Library," *Journal of the Royal College of Physicians of Edinburgh* 40, no. 1 (2010): 86-87.

was Pitcairne's original fever lecture.[140] Pitcairne was a prominent Latinist, both in his poetry and scientific works, and was a leading member of the Easy Club which conversed in Latin.[141] Even though Pitcairne's Scottish pronunciation of Latin had been criticised by his students at Leiden, his use of Latin in written discourse stemmed from his conviction that it was the language of an international, elite humanism.[142] This, and not the bawdy tavern songs, was a register that Sibbald understood and used. If Pitcairne and his followers disrupted the discourse of a community of gentlemanly scholars, who had defined impassioned, polite debate, Sibbald would reciprocate in turn, using humanist invective.[143]

The attack on Sibbald's integrity in 1694 and his defence in 1710 might appear as mere rhetorical salvoes in an impassioned dispute among a fractured community of physicians who sought to make use of institutional rivalries to advance or protect their careers. In this dispute, both sides overstepped the bounds of gentlemanly civility that had been deemed important in seventeenth-century scientific discourse.[144] However, for protagonists like Sibbald, who emerged from the shadows belatedly but decisively, this was not only an issue of personal reputation but went to the heart of his understanding of what natural history was, and what the naturalist should do. Through his practical training, his engagement with ancient and modern authors, judicious selection of textual evidence, as well as observations in nature and spaces like museums and gardens, the naturalist should be the embodiment of his discipline. This discipline required not laws, but compilers of knowledge like Sibbald, free from the tyranny of mathematics, who step-by-step built a world that came closer to the kind of truth that was accepted by a timeless community of other naturalists.[145] The compiler should also not stray into the realm of unfounded speculation and overarching hypotheses, although Sibbald's attempt at deflecting allegations of having done this could

---

[140] Cunningham "Sydenham versus Newton," 98.
[141] Ralph McLean, "The Decline of Latin in the Scottish Universities," in *Neo-Latin Literature and Literary Culture in Early Modern Scotland*, ed. Steven J. Reid and David McOmish (Leiden: Brill, 2016), 268-270.
[142] McLean, "Decline of Latin," 270.
[143] Steven Shapin, "'A Scholar and a Gentleman': The Problematic Identity of the Scientific Practitioner in Early Modern England," *History of Science* 29, no. 3 (1991): 279-327.
[144] Daston, "Baconian Facts," 37-63.
[145] Shapin, *A Social History of Truth*, 3-8.

not convince a careful reader of the *Scotia Illustrata*, especially its natural philosophical first book.

PART 2 - COLLECTING

Whereas the first part of this thesis is concerned mostly with Sibbald's ideas, the second part deals with one of the most enduring and most visible activities of naturalists: the collecting of natural history. Although Sibbald remains a central figure in the consideration of Scottish natural history collecting, this part widens the lens to consider different collectors and collecting activities by Scots in the seventeenth and beginning of the eighteenth century. For Sibbald, museums were on the one hand a modern form of knowledge-making, which emerged in sixteenth-century Italy and found its fullest exposition in the institutional efforts of the Royal Society in London.[1] On the other hand, Sibbald also saw in museums a continuation of ancient observational virtues and spaces for the contemplation of nature that did not require the naturalist to leave an enclosed space that allowed the intellect to observe and consider the workings of the divine. Sibbald's *Auctarium Musaei Balfouriani* (1697) spelt this out clearly and additionally represents Sibbald's vision of how the spectating of the *Theatrum Mundi* might serve didactic aims in the setting of the town college museum. While the *Auctarium* was the only Scottish museum catalogue that made it into printed form, Sibbald was not the only and not even the most enthusiastic or prolific collector. Other Scots in Sibbald's orbit collected and established collections, such as the Balfour brothers James (c.1600–1657) and Andrew Balfour (1640–1694). Sibbald saw particularly his distant cousin and friend Andrew Balfour as a forerunner of his own work, but he diverged in his collecting interests from Balfour's geographically diverse collection which seems to have emphasised exotic rarities over Scottish natural history. Important is also the network of fossil exchange maintained by Robert Wodrow (1679–1734), which included the Edinburgh museum keeper James Paterson (c.1680–1705), but in which Sibbald plays only a secondary role.

These collectors sought out, acquired, ordered and arranged natural history objects for a variety of purposes. While the evidence for James Balfour's collection is only sparse, his natural history activities appear as an extension of courtly and antiquarian interests and serve to underline the image of a learned *virtuoso*, who could apply his humanist learning to

[1] Paula Findlen, "The Museum: Its Classical Etymology and Renaissance Genealogy," *Journal of the History of Collections* 1, no. 1 (1989): 59-78.

the natural world. For naturalists like Sibbald and Andrew Balfour, collecting and ordering were part of their medical training, but were also seen increasingly as the most important way to engage with the natural environment and were the basis for observing, teaching and contemplating a world created by a Christian God. For Wodrow and Paterson, keepers of a library and a museum respectively, collecting served as a means to establish social and professional bonds, to participate in a contemporary scientific debate, and to create a possible career path.

While these are only a small subset of known and unknown Scottish collectors, a focus on collecting, museums and exchange of natural history specimens allows us to consider natural history and medicine as more than the concerns of an educated intellectual elite. Although we know only the names of collectors that the writers of letters and catalogues chose to include, there were numerous anonymous donors and invisible actors. These collectors – often, although not exclusively, male – allowed people like Sibbald and Wodrow to observe the nature of a country which had barely been explored in person by either of them. An emphasis on collecting also allows us to consider the Scottish framework of a pan-European phenomenon. Scots felt that they participated in a shared enterprise, with shared values, but they did so in a specifically Scottish context, aware that, to a British and European sensibility, they were at the geographic periphery. However, while this meant that they did not have access to the trading networks which supported the insatiable acquisition of specimens by seventeenth-century naturalists in Amsterdam or London, it also meant a turning towards Scottish natural history as a priority. Natural history in Scotland was, therefore, often local natural history, conducted on a smaller scale by fewer people, who nevertheless engaged with ideas that energised the European Republic of Letters such as the debate about the origins of fossilised plants and animals.

Museology and the history of collecting are supported by a rich historiography which draws from sociology, the histories of material culture, science and consumption and the history of natural history.[2] Similarly to the wider history of natural history in early modern

---

[2] The more useful contributions of this have been made in the past 40 years in a historiographical break with the older teleological and linear history of collecting which has been summarised as the "old museology" by Randolph Starn in "Historian's Brief Guide to New Museum Studies," *The American Historical Review* 110, no. 1 (2005): 72. Early important conceptual works which have initiated this break are Krzysztof Pomian, *Collectors*

Scotland, there exist very few contributions to this historiography which include Scottish collections.[3] While Scottish sources on seventeenth-century collecting are not as abundant as those for English, Italian and French collections, a museum scholarship that emphasises collecting identities, collections as institutions, catalogues, and collecting activities is a useful support for research on the collectors discussed here.

In sociological form, collecting has been described as “a form of consumption characterized by the selection, gathering together, and setting aside of a group of objects,” and particularly where it pertains to the collecting of luxury goods, collecting has been described as “consumption writ large.”[4] The emphasis on consumption and status related to rarity and luxury reflects some of the concerns of the Scottish collectors discussed here, particularly the gemstone treatise of James Balfour, and Andrew Balfour’s emphasis on acquiring rare items for his collection. It is also echoed in the use of the term “rarities of the college” for the university collection, which copied English practice.[5] However, even though Sibbald used the language of “rarities,” his more cautious attitude to what he identified as luxuries – primarily foreign objects – shows an important distinction between his and the Balfours’ collecting.[6]

The collector is often the focus of historical scholarship, and the establishment of

---

and Curiosities: Paris and Venice, 1500-1800, trans. Elizabeth Wiles-Portier (Cambridge: Polity, 1990, originally published in 1987), who has seen museum objects as visible guides to invisible realms, temporal, spiritual or cultural; and Eilean Hooper-Greenhill, *Museums and the Shaping of Knowledge* (London: Routledge, 1992), who rejected a “normal” history of museum that sought “to show how things have not changed, how things have remained the same from one century to the next,” 22. The most useful studies on early modern collections and collectors which have informed this thesis have been Findlen, *Possessing Nature*, and Delbourgo, *Collecting the World*.

[3] Even though one of the first contributions to the “old museology” was made by the Glasgow antiquary David Murray, who stated that when writing his book, he had beside him five museum catalogues, which included, among the works of Wormius, Grew, Mercati and Aldrovandi, Sibbald’s *Auctarium Musaei Balfouriani*. David Murray, *Museums, Their History and Their Use* (1904; reprinted London: Routledge/Thoemmes Press, 1996), vi.

[4] Marjorie Swann, *Curiosities and Texts: The Culture of Collecting in Early Modern England* (Philadelphia: University of Pennsylvania Press, 2001), 6; Russell W. Belk, *Collecting in a Consumer Society* (London: Routledge, 1995), 157.

[5] The Burgh Records consistently refer to the “rarities” of Andrew Balfour and of the college. John Tradescant’s 1656 catalogue of his museum was titled “A Collection of Rarities Preserved at South-Lambeth Neer London” and the full title of Nehemiah Grew’s catalogue was Nehemiah Grew, *Musæum Regalis Societatis, or, A Catalogue and Description of the Natural and Artificial Rarities Belonging to the Royal Society and Preserved at Gresham Colledge Made by Nehemiah Grew ; Whereunto Is Subjoyned The Comparative Anatomy of Stomachs and Guts by the Same Author* (London: W. Rawlins, 1681).

[6] Sibbald uses the Latin “rariora” in his *Vindiciae* to describe this collection, Sibbald, *Vindiciae*, 10, and the subtitle of the *Auctarium* begins with “Rerum Rariorum, tam Naturalium quam Artificialium…”

collecting identities from biographical information and catalogues has been useful in identifying different emphases of collecting activities. Arthur MacGregor's account of the English collector John Tradescant (the Elder, d.1638) reconstructs such an identity from the extant museum catalogue, although such a reconstructive approach has been criticised by others as de-emphasising the context that allowed for particular subject positions and collecting contexts to emerge, particularly with regards to colonial history.[7] In the case of the collectors identified in this study, different collecting identities play a decisive role in the establishment, institutionalisation and failures of the collections discussed here, and a biographical approach is inevitable considering the available source material. These identities have to be reconstructed from clues in their correspondence and catalogues.[8] Often the identities this established result from a process of self-fashioning through a collection which either reinforces or undermines "the dominant categories of the society in which the collection appears, " as Marjorie Swann has identified for early modern English collections.[9] Particularly the private museums of Andrew Balfour and Robert Wodrow served as, in Paula Findlen's words, repositories of materials "out of which to construct an identity and the means to publicise it."[10] The strongest identification of a collector with a collecting identity can be seen in Andrew Balfour whose collection was very probably the largest and geographically the most diverse in Scotland. After Andrew Balfour died in 1694, Sibbald sought at least in part to emulate his collecting identity, although without the emphasis on non-Scottish objects that marked Balfour's cosmopolitanism. To draw out the differences between collectors like the Balfour brothers and Sibbald, it might be useful to think of them as trying to embody particular archetypes of collector, that of the courtly antiquarian James Balfour, of the cosmopolitan traveller Andrew Balfour and that of the scientific collector Robert Sibbald. The public collecting personas they tried to curate, however, do not suggest distinct collecting identities, which would in the worst case lead to little more than caricatures. Rather, the aim is to identify the differences in collecting which

---

[7] Arthur MacGregor, ed., *Tradescant's Rarities: Essays on the Foundation of the Ashmolenan Museum 1683 with a Catalogue of the Surviving Early Collections* (Oxford: Clarendon Press, 1983). Eilean Hooper-Greenhill, *Museums and the Shaping of Knowledge*, 21.
[8] The language of clues is borrowed from microhistorical methodologies, as set out by Carlo Ginzburg in, "Morelli, Freud and Sherlock Holmes: Clues and Scientific Method," *History Workshop Journal* 9 (1980): 5-36.
[9] Swann, *Curiosities and Texts*, 8, building on the work of Susan Pearce.
[10] Findlen, *Possessing Nature*, 294.

can help gauge, ultimately, how far Sibbald saw collecting as a useful didactic and epistemic tool.

In the vast majority of cases, catalogues represent the only extant material objects of a collection.[11] This is true for the Scottish collections considered here as well.[12] Catalogues allow us to detect the scientific, social and didactic aspirations of naturalists.[13] Catalogues of collections also provide us with evidence of the material form taken by ideas about nature, even though the specimens they describe are no longer available for us to see. They document the social, scientific and didactic aspirations of the naturalists who compiled them, and the only printed catalogue of a Scottish collection during this period. While James Balfour's treatise on precious stones takes on the formal shape of a catalogue, with objects belonging to different chests, or "caskets," they probably do not represent the layout of a physical collection. Robert Sibbald's *Auctarium Musaei Balfouriani* (1697) will serve as a central text of analysis, but as will be shown, it represents more than just an inventory list. Rather, it encompasses Sibbald's ideas of collecting and museum and a vision for a flexible, didactic collection, which allowed for a contemplative investigation of nature in an institutional setting. By contrast, Robert Wodrow's catalogue, available only in manuscript form, was a working inventory, the result of years of personal collecting activities and use of a network of mostly, although not exclusively, local contacts. Wodrow's more extensive extant correspondence allows us to reconstruct more fully his collecting practice.

The institutional context and institutionalisation process of private collections is an important aspect of the collections discussed here. While only two of the collections, those of the Balfourian and Sibbaldian collections at the town college, were consciously created for the learned academy, other collections also had an institutional context.[14] Wodrow used the resources afforded to him by his keepership of the Glasgow university library to

[11] There are notable exceptions, like the shells from William Courten's collection which made it into the British Museum, Anna Marie Roos, "Fossilized Remains: The Martin Lister and Edward Lhuyd Ephemera," in *Archival Afterlives: Life, Death, and Knowledge-Making in Early Modern British Scientific and Medical Archives*, ed. Vera Keller, Anna Marie Roos, and Elizabeth Yale (Leiden: Brill, 2018), 165-171.
[12] While the tracing of extant items has not been the focus of this study, it seems that apart from a few items which were in the Edinburgh town college library before 1697, no items can be traced to the early Scottish collectors here, apart from a dried baleen whale penis at the National Museum of Scotland, catalogue record Z.1990.76. See also pages 154 and 187.
[13] Findlen, *Possessing Nature*, 36; Swann, *Curiosities and Texts*, 8.
[14] On academic collections, Anna Marie Roos and Vera Keller, eds., *Collective Wisdom: Collecting in the Early Modern Academy* (Turnhout: Brepols Publishers, 2022).

augment his own collection, and James Paterson, the Edinburgh keeper, had to deal with the restrictions placed on him by town college officials and resorted to his private collection when it was necessary to take part in Wodrow's collecting network. The institutionalisation of a private collection like Balfour's was hampered by a clear direction of what a museum could provide for a seat of learning like the Edinburgh town college, which was unsure of its own academic direction. The resulting lack of financial support led to the departure of James Paterson for England and meant that fragilities in Wodrow's personal network of collectors, which was based on sociability as much as on knowledge exchange, were exposed.

The collectors examined in the following chapters represent only a subset of the known collectors of natural history during Sibbald's time. Some collections within Sibbald's close circle like the botanical collections of James Sutherland, or the collections of John Adair and Martin Martin will not be considered, since their clues are even more elusive than those of the Balfour's, Wodrow's or Paterson's.[15] However, a consideration of what Sibbald saw as the modern activity of collecting in Scotland will illuminate the material, institutional and intellectual context of his engagement with natural history.

[15] The physician Charles Preston, writing to Hans Sloane in October 1698, noted that Adair went on a journey to the Western Isles in company of Martin "so that I doubt not they will return fraughed with a Large cargoe of natural curiosities," Charles Preston to Hans Sloane, 13 Oct 1698, Royal Society Library EL/P1/102.

Chapter V – Two Seventeenth-Century Scottish Collectors: James and Andrew Balfour

The origin of any early modern collection was the collector, whose self-image, often as carefully curated as the objects in the collection, not only directed which objects were seen as worthy or useful to collect or which practices were to be followed in collecting but also became firmly attached to the collection. The collecting identity thus created often survived the objects in the collection, and for people like Robert Sibbald, served as a model to emulate and refine for his own didactic purposes. While, as will be seen below, Sibbald saw the origins of museums in sixteenth-century Italy, he was keen to emphasise Scottish precedents, particularly those whose credibility was enhanced by social status and personal contact. His distant relatives, the Balfour brothers James and Andrew emerge as the first identifiable systematic collectors of natural history particulars in Scotland. This was largely Sibbald's doing since it was him who presented them as erudite collectors in his biography, the *Memoria Balfouriana* (1699).[1] Sibbald's lens means that the collecting personas we can reconstruct are as much Sibbald's creation as they are the creation of the historian.

The younger brother Andrew (1630–1694), was known as a prolific collector of exotic and rare *naturalia* and *artificialia*, procured personally, or via agents, friends and acquaintances. Andrew curated the personality of a cosmopolitan learned collector, particularly of nature, which was emphasised by Sibbald's account of him and by the posthumous publication of his *Letters Writen to a Friend* [sic].[2] While Andrew's collecting was linked to his profession of medicine, his older brother James' (c.1600–1657) connections with the Stewart court in Scotland meant that he saw knowledge of nature as part of a courtly *virtuoso* persona, which required a conspicuous show of erudition in all aspects of learning. James became mostly known for antiquarian work, but his engagement with humanist natural history can be evinced from a treatise on precious stones. The following chapter considers both this

[1] These remain our most important biographical source for both Balfour brothers. Robert Sibbald, *Memoria Balfouriana, sive, Historia rerum, pro literis promovendis* (Edinburgh: Andrew Anderson, 1699), the work seems already to have been finished a few years earlier, and Sibbald sent Hans Sloane an unbound copy in June 1696, EUL MS Dc 8.35, f. 1. For some citations from this work, John Walker's translation from his "Memoirs of Sir Andrew Balfour," see page 33.
[2] Balfour, *Letters*.

treatise as well as Andrew's *Letters* to show that the Balfour brothers curated the personas of learned erudition, which became Sibbald's role models and the intellectual and material foundation for his own collecting activities.

5.1 James Balfour (c. 1600–1657) and precious stones

James Balfour (c. 1600–1657) is mostly associated with collecting manuscripts, books and antiquities, and wrote topographical descriptions of Scotland that emphasised the genealogies of Scottish nobility and provided regional descriptions of the Scottish shires and their historical sites.[3] Balfour assumed the heraldic office of Scottish Lyon King of Arms in 1630, and much of his collecting was related to his activities at the Scottish Jacobean court, such as the orchestration of Charles I's Scottish coronation in 1633. As Hugh Ouston has emphasised, it was in that role that Balfour shaped the "Royalist aristocratic intellectual model."[4] James Balfour collected maps, genealogies and chorographical descriptions of Scotland because, as Charles Withers has identified, he saw geography as part of useful state knowledge, although Withers considers his use of geographical information as less overtly political than Sibbald's.[5] Sibbald, whose interest in the activities of James Balfour was related to his own role as Geographer Royal for Scotland, emphasised the continuities in Balfour's written works with the late sixteenth-century Scottish chorographical and historiographical tradition of Timothy Pont, Robert Gordon of Straloch and James Rothiemay.[6] An emphasis on continuity was as important for Sibbald's work here, as it was for his natural historical practice. Sibbald also drew attention to Balfour's approbation by professional bodies, by noting that Balfour's heraldic activities were recognised by the foremost English body, the College of Arms, and by including the transcript of a panegyric

---

[3] Alexander Du Toit, "Balfour, Sir James, of Denmiln and Kinnaird, First Baronet (1600–1657), Antiquary and Herald," in *Oxford Dictionary of National Biography* [Online], 2010; Richard Ovenden, "Sir Andrew Balfour," in *Pre-Nineteenth-Century British Book Collectors and Bibliographers*, ed. William Baker and Kenneth Womack (Detroit: Gale, 1998), 12-20; A partial translation of his biography from Sibbald's *Memoria Balfouriana* is Sir James Balfour, *The Historical Works of Sir James Balfour*, ed. James Haig, vol. 1 (Edinburgh: W. Aitchison, 1824), xi-xxx, which will be used where the translation is deemed accurate.
[4] Ouston, "York in Edinburgh," 137.
[5] Withers, *Geography*, 50.
[6] *Historical Works of Sir James Balfour*, xv-xvi.

on Balfour by members of that college.[7] In a similar move, Sibbald had drawn attention to his own honorary membership of the London College of Physicians, attained in 1686, by including in his *Miscellanea eruditæ antiquitatis,* a letter written by William Charleton in 1690 that confirmed this appointment.[8] Sibbald's account of Balfour's learned sociability included largely political and literary figures, like the Scottish Lord Chancellor George Hay of Kinnoull, the poets Robert Aytoun and William Drummond of Hawthornden, as well as Sibbald's uncle, the physician George Sibbald, and Sibbald's father David, keeper of the Great Seal of Scotland.[9]

James Balfour was, however, not just an eminent heraldist and a collector of manuscript material. As Sibbald emphasised, Balfour also "carefully collected and arranged, as an appendix to his library, every precious fragment of this ancient furniture [of] coins, rings, collars, bracelets, seals and other reliques of the older time."[10] This collection of antiquarian material served epistemic as well as representational purposes. On the one hand, these relics served to support the chronology of Scottish history which Balfour sought to establish in his historical works, as Sibbald noted, "to supply the deficiencies, and to correct the errors of our Scotish historians."[11] On the other hand, as Balfour's portrait shows, he sought to cement his status as a learned court official by surrounding himself with these artefacts, in a conspicuous display of learned erudition.[12] The undated portrait shows Balfour informally dressed in his book-lined study engaged with a book on heraldry and with a selection of coins or medals as well as a pair of compasses in front of him, which served to emphasise the connection between material and written evidence in Balfour's historical work. There is also some similarity between Balfour's portrait and the portraits of seventeenth-century Dutch merchants and naturalists who had themselves depicted as handling rare and curious natural objects like shells, in a display of erudition, sensuality, exoticism and possession.[13] While the Dutch sitters aimed to show themselves in possession

---

[7] *Historical Works of Sir James Balfour*, xvii-xviii.
[8] Sibbald, *Miscellanea eruditæ antiquitatis*, 81-2. See also, page 65.
[9] *Historical Works of Sir James Balfour,* xv, xxix.
[10] *Historical Works of Sir James Balfour*, xxiii.
[11] *Historical Works of Sir James Balfour*, xxiii.
[12] The portrait can be viewed at National Galleries of Scotland, "Sir James Balfour, 1600 - 1657. Historian and Lord Lyon King-of-Arms," 2020, https://www.nationalgalleries.org/art-and-artists/1788 (accessed 1 Feb 2024).
[13] Claudia Swan, "The Nature of Exotic Shells," in *Conchophilia: Shells, Art, and Curiosity in Early Modern Europe*, ed. Marisa Anne Bass et al. (Princeton: Princeton University Press, 2021), 21-47.

of objects from geographically remote places, Balfour's emphasis was his command of the chronologically remote objects of early Scottish history.

In addition to his collection of manuscripts and antiquities, Sibbald observed, that James Balfour "also illustrated natural history," and "had Collected in his Cabinet many Curious Products of Nature and pieces of Art, and took delight to cherish this early Curiositie of his younger Brother," Andrew.[14] Unlike Balfour's manuscripts, James Balfour's collection or any catalogue that might have accompanied them has not survived, and many of the natural history items might have made it into his brother's later collection. Furthermore, natural history was not Balfour's focus, and there was little to suggest that he saw it as the kind of state knowledge that Sibbald saw in his natural historical works. By contrast with Sibbald's *Scotia Illustrata* project, James Balfour's definition of what sort of entity Scotland was came from civil, rather than natural history. It is also unlikely that James Balfour's knowledge of natural history was as extensive as that of his brother Andrew or of Robert Sibbald, both of whom, as physicians, had a professional interest in natural history.

However, among Sibbald's list of James Balfour's writings and manuscripts, there is one clearly identifiable work of natural history. Balfour's treatise on precious stones, which has survived in manuscript form, is one of the first Scottish vernacular attempts at a systematic description of natural particulars and gives us an insight into the natural historical interests of a Scottish courtly antiquarian collector.[15]

Balfour's manuscript work on precious stones – by which he meant gems, decorative building stones, *materia medica*, and other organic and non-organic objects that fall loosely into that category – was divided into six chapters which Balfour playfully termed "caskets," or chests, as if each contained a physical arrangement of ten or thirteen different types of stones. Each "casket" represents a group that seems to relate to each other loosely by appearance or use, with one "casket", for instance, reserved for precious gems like diamonds, rubies and sapphires, and another containing stones used in building decoration like marble and alabaster. It is not clear which system of ordering Balfour followed, and it is tempting to think that the "caskets" referred to a physical collection of specimens in a

---

[14] "Historiam emin Naturalem illustravit." Sibbald, *Memoria Balfouriana*, 45. Balfour, *Letters*, iii.
[15] NLS Adv. MS 33.7.9 [Compilations on precious stones by Sir James Balfour of Denmilne], ff. 1-78, hereafter Balfour, "Precious Stones."

cabinet, but there is no indication that this was the case. While the manuscript confirms that Balfour did have a physical collection of natural historical objects, that included precious stones, only a few specimens in his possession are mentioned, such as the shells of pearl-producing molluscs from India or a piece of reddish-white alabaster.[16]

Balfour's treatise is a showcase of Latin humanist learning which made use of a substantial collection of contemporary works of natural history. Balfour cited various works by ancients such as Dioscorides, Galen, Theophrastus and Pliny, and more modern authors like Albertus Magnus, Georg Agricola, and in particular continental physicians and naturalists like Carolus Clusius, Pietro Andrea Mattioli, Valerius Cordus, Nicolas Monard, Antoine Mizauld, Mathias de Lobel, Gerolamo Cardano, Leonard Fuchs, and others.[17] Each of the entries included descriptions, alternate names, places of origin and "virtues" or uses of the category described, which were assembled from these other naturalist works. Balfour used the tools of humanist Renaissance natural history in trying to reconcile discrepancies between ancient and modern knowledge and noted the absence of a particular name among ancient authors in the same way that a sixteenth-century naturalist might note the absence of classical references to New World tobacco or sunflowers.[18] He also sought to expand the humanist toolset by appending to his treatise an "Alphabet of pretious stones, mentioned by the Ancient Greicks and Romans," which made it easier to identify which objects had classical precedents.[19]

Balfour's learning was largely, although not exclusively textual. In his treatise, Balfour occasionally supplemented the descriptions drawn from ancient and modern sources with his own observations, some of which are kept very general. Balfour noted for instance that he had seen more than sixty different types of agate or six types of jasper of "several and divers colours," confirming that each species of stone exhibited considerable variety, but without going into any more detail.[20] In other cases, his observations served to expand the textual evidence of the visual characteristics of a category of stones. Balfour noted that he had "often seine" pale brown calcedony, or that he had seen some toad stones (*Crapaudine*)

---

[16] Balfour, "Precious Stones," ff. 20r, 60r.
[17] Sibbald emphasises Balfour's Latin learning in *Historical Works of James Balfour*, xiv-xv.
[18] Ogilvie, *Science of Describing*, 139-140. Anthony Grafton, *New Worlds, Ancient Texts: The Power of Tradition and the Shock of Discovery* (Cambridge: Harvard University Press, 1992).
[19] Balfour, "Precious Stones," ff. 79-94.
[20] Balfour, "Precious Stones," ff. 28v, 29v.

appear “tanney with small freckells yallow spotted olive coloured and of ane Ashe color,” which expanded the range of characteristics mentioned by his sources.[21] He also remarked that he had seen both rough and smooth types of eagle stone (*Lapis Aetite*, used for obstetric purposes in early modern Europe) the size of a goose egg.[22] Balfour occasionally recorded instances of noteworthy decorative use, mentioning for instance that he had seen an entire horse caparison embroidered with turquoise.[23] In his treatise, Balfour also showed an interest in craft knowledge, and he described the “Dutch process” in the manufacture of vermillion by the repeated heating of mercury and sulphur.[24] Here, Balfour pointed out that his knowledge derived solely from observation and stated that “as for ye wertures and qualities of [this process] I doo not find aney uther then quhat I my salue heth seine trayed.”[25] Although Balfour does not suggest that this knowledge had any immediate economic applications for the state, his interest in the manufacture of vermillion mirrors the attention to this type of craft knowledge by English early Stuart courtiers, and Francis Bacon’s emphasis on technology advancing the state.[26] In his account, Balfour emphasises the repeatability of this procedure, noting that he had observed the procedure of vermillion production three times, thus hinting that this was a stable process with predictable outcomes and possible commercial applications.[27] Balfour also appended to his treatise a commentary in Latin, collected from various authors, on how different types of precious stones could be forged. [28] This commentary reflects Balfour’s interest in the craft knowledge that made forgeries possible, the anxieties of the collector who might be fooled by well-made forgeries, and the *virtuoso* gentleman’s interest in the ambiguous relationship between *naturalia* and *artificialia*.[29]

---

[21] Balfour, “Precious Stones,” ff. 30r, 48r.
[22] Balfour, “Precious Stones,” f. 71v
[23] Balfour, “Precious Stones,” f. 23v.
[24] Balfour, “Precious Stones,” f. 16r. A detailed description of the process in a seventeenth-century manuscript is in A. F. E. Van Schendel, “Manufacture of Vermilion in 17th-Century Amsterdam. The Pekstok Papers,” *Studies in Conservation* 17, no. 2 (1972): 70-82.
[25] Balfour, “Precious Stones,” f. 15v.
[26] Keller, *The Interlopers*, 9, 91-121.
[27] Balfour, “Precious Stones,” f. 15v.
[28] Balfour, “Precious Stones,” f. 79ff.
[29] While shells were particularly susceptible to forgery in early modern Europe, artificial gemstones like jasper also held the interest of practitioners who described the process of their creation in detail: Pamela H. Smith and Isabella Lores-Chavez, “Counterfeiting Materials, Imitating Nature,” in *The Matter of Mimesis: Studies of Mimesis and Materials in Nature, Art and Science*, ed. Marjolijn Bol and Emma C. Spary (Leiden: Brill, 2023), 27-53.

Balfour's observations, like the turquoise carapace and the production of vermillion, seem to have mostly been conducted while he was travelling. Sibbald noted in his biography of Balfour that he had travelled after his undergraduate studies at St. Andrews to "observe the manners of different nations, and to cultivate the acquaintance of learned men."[30] This creates the image of Balfour as a cosmopolitan traveller, which Sibbald perfected in his account of James' brother Andrew, and which stands in contrast with Sibbald's own reluctance of foreign travel. This cosmopolitan image also allowed him to compare Scottish precious stones with those from abroad. In his consideration of pearls, he recorded that in addition to those from the Indian Ocean, Borneo, China and the New World, the Scottish rivers Tay, Dee, Doon, Dinnet, Ore, Ness, Lyon and Esk produced pearls, but that these were of lesser quality with a nebulous lustre.[31] Much of this sort of detailed geographical information might have been acquired from surveys by geographers like Timothy Pont, but Balfour also supplemented it with personal observations. For instance, he noted that, at Perth, he once saw a very large pearl "wich wes gottin in ye River Lyone, in a Fleiminges hand quho bought it of a heighlander for .30. dolares. It weyed 45 graines."[32] Similarly, Balfour reported that while many chalcedony stones came from Italy, Spain, or Germany, "I have seine werey good found in Scotland."[33] Balfour also noted that Scotland afforded a good supply of different types of stones, some of which possessed mythical properties such as touchstones (*Lapis Lydius*, used to test the purity of precious metals such as silver and gold), some of which were highly prized, like *Lapis Gagates* (jet-stone), and he suggested that pyrites could be found in abundance in the country.[34] However, whereas Balfour shared some of Sibbald's interest in indigenous natural productions, he did not share Sibbald's preference for elevating the indigenous over the exotic.[35] On the contrary, Balfour repeatedly stressed that the best-quality stones and gems were located in the East, or the New World, in a tradition that stretched back to Pliny and that was prevalent in early

[30] *Historical Works of Sir James Balfour,* xv
[31] Balfour, "Precious Stones," f. 21r.
[32] Balfour, "Precious Stones," f. 21r.
[33] Balfour, "Precious Stones," f. 30.
[34] Balfour, "Precious Stones," ff. 4v, 76r, 77r, 63v.
[35] See chapter III.

modern Europe.[36] An emphasis on the rare and exotic meant that Balfour also exhibited an interest in the preternatural, and he included a lengthy account of the bezoar and "the most wonderfull and admirable wertues and qualities of this most pretious stone."[37]

Much of Balfour's interest in precious stones stemmed from the monetary value inherent in them, and he noted in his prefatory remarks that "the pryce of Gemms and pretious Stones are ather according to there Raritis or the cowetous affections of Men Lesse or more."[38] Since size and weight were an important determinant of price, Balfour followed this observation up with a list of different weights used in Europe and India. An appraisal of monetary value was not a mere merchant's task but was also a useful display of connoisseurship by the courtier and collector.[39] Monetary value was also part of early modern natural historical works and Sibbald noted in his *Auctarium* in 1697 that he had "seen a Necklace, of Pearles found in this Country, which was valued at five hundred pounds sterling: they were all exactly round, of a good water, & well matched."[40] Monetary value also allowed the antiquarian to consider the historical significance of an item. Balfour noted the price of the diamonds and rubies given by Philipp II of Spain to Queen Elizabeth of England, which emphasised both the value of the gems as well as the importance placed on this diplomatic connection.[41]

While Balfour was no practical naturalist in the sense that Sibbald and his younger brother were, he employed his antiquarian humanist training in his investigation of nature. His account of precious stones suggests that he treated natural historical objects in a similar way that he treated the relics of civil history: as supplementing textual knowledge and as a display of learned connoisseurship. Encounters with – and possession of – precious stones, observations of their properties, manufacture and use, and consideration of their value all

---

[36] Michael Bycroft, "Boethius de Boodt and the Emergence of the Oriental/Occidental Distinction in European Mineralogy," in *Gems in the Early Modern World: Materials, Knowledge and Global Trade, 1450-1800*, ed. Michael Bycroft and Sven Dupré (Basingstoke: Palgrave Macmillan, 2019), 153.
[37] Balfour, "Precious Stones," f. 48r. On the bezoar, see Daston and Park, *Wonders and the Order of Nature*, 167.
[38] Balfour, "Precious Stones," f. 1r
[39] On the relationship between value and expertise, see Arjan Appadurai, "Introduction: Commodities and the Politics of Value," in *The Social Life of Things*, ed. Arjan Appadurai (Cambridge: Cambridge Univ. Press, 1986), 45-7.
[40] Sibbald, *Auctarium*, 178.
[41] Balfour, "Precious Stones," f. 4v.

serve to underline the image of the *virtuoso* who knew about the historical, geographical, medical, commercial and historical properties of objects. James Balfour emerges in his treatise and Sibbald's biography as a courtly, discerning collector archetype, who might not have had a structured education in matters of natural history like a trained physician, but who was able to bring a humanist Latin education to bear on any matter of learning.

Balfour's manuscript remained unpublished and little noticed among his contemporaries and in historical scholarship. While most of Balfour's treatise derived information from other sources, it did hold some interest for Sibbald, who carefully jotted down in his notes Balfour's chapter headings and his "casket" structure.[42] However, Sibbald did not include Balfour's observations on precious stones in his *Scotia Illustrata*; it might be that he only had access to the work after Andrew Balfour's death, in 1694.

5.2 Andrew Balfour (1630-1694)

Andrew Balfour's collecting was a continuation of the interests of his older brother, but it appears more clearly shaped by his medical training. Balfour's education at Paris and Montpelier, which mirrored in parts Sibbald's practical training in the anatomy theatre and hospitals, as well as in chymistry and natural history in the physic garden, has already been discussed.[43] However, it is noteworthy that in Sibbald's account of Andrew Balfour's life, it was botany and natural history which made him turn to medicine, rather than the other way around.[44] This is an unusual reversal of priorities, by which Sibbald contrasts Balfour's early interests with his own and perhaps emphasises the increased role of natural history which Sibbald saw by the time of writing the *Memoria Balfouriana*.

Balfour spent fifteen years abroad, from 1650 to 1665, first in London and then on the continent. The practical rather than theoretical side of Balfour's training was emphasised by Sibbald, who contrasted Balfour's educational journeys with that of some "neoterics who

---

[42] NLS MS 33.3.16, f. 27r.

[43] See section 2.2.

[44] See section 2.2. "Cum autem, ingenti Desiderio Botanices, reliquaeque Historiae naturalis accensus esset, Medicinam Artem amplexus est, in cujus studio priusquam ad Aegros sanados se accingered," Sibbald, *Memoria Balfouriana*, 48.

went through a system of medicine, acquired foreign dogmas and empirical medicine from the teachings of physicians and swelled with pride and arrogance that they believed the universal art of medicine rested on their brow like on the shoulder of Atlas."[45] Instead, Sibbald emphasised later, Balfour had "studied more things than words."[46]

During his journeys, Balfour honed his observational skills, and some of Balfour's botanical observations are preserved in his manuscript notes on botany, which he titled "Catalog of Plants and Herbs whiche I have seen."[47] This notebook lists a total of 1367 plants, cross-referenced against John Parkinson's *Paradisi in Sole* (1629) and his *Theatrum Botanicum* (1640) and emphasises Balfour's direct observation of species of plants in particular locations.[48] The entries are ordered alphabetically, with space left in between each letter for additional entries. They also do not appear uniform: some entries are crossed out or amended later, and individual successive entries are written with a different quill and ink. While the document deserves more detailed study, these clues suggest that Balfour's "Catalog," had the status somewhere between a field notebook and an acquisitive list, in which techniques developed by sixteenth-century continental naturalists merge with the concerns of a collector for whom the number and variety of objects collected conferred status.[49] The emphasis on quantity as a measure of erudition is emphasised by the fact that Balfour gave successive summations of the total number of plants listed in his notebooks on seven different dates between 1657 and 1664, which might refer to specific botanical expeditions during his continental travels.[50] In addition to a mnemonic value, there is also evidence that Balfour used the catalogue for horticultural purposes, and he noted under which conditions different types of plants could thrive. A separate list in the notebook is headed "plants delighting in moyst & shady places," and contains twenty-five entries of

---

[45] "non ut Quidam, qui quamprium Neoterici cuiusdam Systema Medicum percurrerint, Dogmataque quaedam a recepta Medicorum Sentenita, aliena hauserint, et Empirica quaedam Remedia acquisiverint, tanto Fastu et Arrogantia tument, ut Universam Artem supercilio suo, tanquam Coepum Atlantis Humeris, inniti existiment," Sibbald, *Memoria Balfouriana*, 48.
[46] Balfour, *Letters*, Preface, ix.
[47] RCPE Archives, DEP/BAA, the item does not contain pagination or foliation.
[48] The English collector John Tradescant the elder had used Parkinson's *Paradisi in Sole* to support his collecting activities between 1629 and 1633 pasting empty pages into the back of his edition of Parkinson and listed which plants he had acquired and who supplied these to him, Swann, *Curiosities and Texts*, 38-9.
[49] On techniques of botanical field observation, see Ogilvie, *Science of Describing*, 141-150.
[50] Balfour started with a total of 1090 plants on 22 June 1657 and that sum increased as follows: 5 Dec 1657: 1161; 8 May 1658: 1175; 6 November 1658: 1212; [n.d.] 1659: 1271; 29 Oct 1660: 1332; 20 Oct 1664: 1367. RCPE Archives DEP/BAA, n.p.

plants that included species like maidenhair fern, bistort, common ivy and Alpine avens, which suggests perhaps a list of British and continental plants that would thrive in a garden like the nascent physic garden at Edinburgh.[51]

James Balfour not only recorded observations of natural history, but he also used his travels to collect items. Sibbald stated that from the time Balfour settled back in Scotland in 1665, he "made it his Business to Collect all yt might make a Compleat Cabinet" on the subject of natural history.[52] The clearest indication of Balfour's collecting practices can be found in Balfour's *Letters writen*[sic] *to a Friend*, published posthumously in 1700. The letters were written originally in or before 1668 and were addressed to Patrick Murray, 2nd Lord Elibank and laird of Livingston (1632–1671), and they represent two lengthy, detailed itineraries, through France and Italy respectively. The advice Balfour gave Murray was founded on the experience he had gathered during his studies and while accompanying the young John Wilmot, later Earl of Rochester (1647–1680) as governor on a European Grand Tour between 1661 and 1664.[53] According to Sibbald, Balfour had not shown these letters to "any but his most intimate Friends," although manuscript copies of Balfour's letters to Murray had circulated after Balfour's death in 1694.[54] Balfour's son Michael had the letters printed and published on the advice of Sibbald, who expressed the hope that more Scottish travel narratives would follow suit.[55] The popularity of these types of travel writing had been demonstrated by the success of Martin Lister's *A Journey to Paris in the Year 1698* (London, 1699), published in the year before Balfour's *Letters*.[56]

Balfour's itinerary included the usual Grand Tour attractions but explicitly emphasised encounters with natural history particulars and Sibbald remarked that Balfour's *Letters*

---

[51] DEP/BAA, n.p. Several of these appear in the list of 1876 plants listed in James Sutherland's catalogue of the garden, Robertson, "James Sutherland's 'Hortus Medicus Edinburgensis'," 132-50.
[52] EUL MS La III 535, f. 1v.
[53] A biography of Wilmot which treats Balfour's advice to Murray on Italy as re-treading this journey, is provided by James W. Johnson, *A Profane Wit: The Life of John Wilmot, Earl of Rochester* (Rochester, NY: Boydell & Brewer, 2004). Johnson notes that Balfour "was venerated by his grateful pupil" and judges that he had a considerable "role in creating [the] emotional and intellectual dilemmas" that characterised the writing of the satirist poet Wilmot, *ibid.*, 54.
[54] Balfour, *Letters*, Preface, ix.
[55] Balfour, *Letters*, Preface, x. These included Patrick Murray's own unpublished letters, as well as another Latin travelogue by an unnamed Scot.
[56] Anna Maria Roos has emphasised that Lister's account differed from the usual advice given to gentlemanly travellers to France who sought to "acquire those accomplishments that became a person of estate and quality" in that it emphasised natural historical knowledge and encouraging personal observation, Roos, *Web of Nature*, 376. Balfour's *Letters* have similar emphasis.

would be "of Excellent use for these who study Natural History."[57] Since Balfour included detailed instructions on how Murray could procure specimens, it is possible to discern some of the emphasis that Balfour placed during his own collecting activities. Indeed, some of the advice to Murray served to enlarge Balfour's collection in Scotland, and in this, Murray was not alone. Sibbald had noted in his biography of Balfour that he gave friends who were going abroad not only letters of recommendation but also "schemes" of categories of natural history of his devising, which probably contained lists of *desiderata* of the type that Balfour appended to Murray's Italian itinerary.[58] Sibbald noted that, in this way, Balfour was able to augment his cabinet yearly with items from regions in Europe and the Indies, which were the most fruitful (*maxime feracia*) in producing them.[59] Balfour sought particularly the unusual and exotic and often made indiscriminate requests for the procurement of items. As Sibbald stressed, Balfour constantly inquired where to find rare plants, seeds, animals and ancient coins, so that he might acquire them "by prayer or by price."[60]

Interwoven in his itinerary, Balfour made requests for specific items to add to his "Tradescants," and he gave Murray practical advice on where to find them, how to prepare them, and how to store them. Since Murray and Balfour shared an interest in botany, much of this advice concerned the collecting of plants and in addition to requesting the newest continental herbals, Balfour pointed out to Murray the best spots for "herborizing," particularly in the south of France.[61] As Balfour's "Catalog" shows, he had extensive experience in the practice of herborizing on the continent, and he assembled "Chartis glutinatarum," or herbaria of dried plants – another Renaissance naturalist technique –

---

[57] Balfour, *Letters*, Preface, viii.
[58] "Peregrinationos se parare, ijs Literas commendatitias ad Amicos suos in exteris Regonibus dabat; et, si Rerum naturalium curiosi essent, consilium quomodo eas perquirerent, unà cum Schemata Rerum ejusmodi per Classes suas distincto, impertiebat," Sibbald, *Memoria Balfouriana*, 68; Balfour, *Letters*, 267-274.
[59] "hinc factum est, ut, quotannis fere, varia ipsum transmitterentur ex Indiis, aut ijs Europae Locis quæ harum Rerum maximè feracia errant," Sibbald, *Memoria Balfouriana*, 68.
[60] "Plantae, Semina, Fossilia, Animalia rariora, nummi Veteres nunquam de animo excidebant, arreptaque Occasione, de hisce rebus inquirebat, num vel ipsi haberent, vel scirent ubinam ea baberi possint; ut vel Prece vel Pretio ea comparare possit," Sibbald, *Memoria Balfouriana*, 86.
[61] E.g. Balfour, *Letters*, 48, 60, and at Frejus in Provence, where Balfour told Murray that there was a "Hill, called Astral… where you will have one of the most pleasant Herborizations in the World," 54. On herborizing, see Ogilvie, *Science of Describing*, 70-4.

which became part of his museum.[62] Once collected, plants should be dried and pressed, and put in a "your *Portefoile*, which for such rancounters you'l do well to be stil provided of … and have them furnished with *Gray Paper* within. I did always use to Carry one of a 40 Form, with good Tyers to it in a *Carpet* Bag."[63] In addition to the dried specimen, Balfour advised Murray where to purchase seeds, with which he could augment his growing collecting of plants at Livingston, and which would also form the basis for the establishment of the Edinburgh physic garden by Balfour and Sibbald.[64] Seeds of plants could usually be purchased from the keepers of gardens, and had the advantage that they were easy to carry and could serve as currency with other naturalists since, as Balfour remarked to Murray, "the best way to ingage all such Men is to have allways a Parcell of rare Seed with you, and to give them some by which means you will find them readie to give you whatever they can spare in like manner."[65]

In addition to plant material, Murray was instructed to collect animals such as birds, lizards or fishes which, Balfour advised, should be cut, the flesh removed and then stuffed: "I suppose the best way will be (especially if the skin be any thing strong) to cause skin them, preserving the head feet and taile, and then stop the Skin with Flax."[66] Balfour also asked Murray to collect the alum, nitre, sulphur, vitriol and sal ammoniac produced in the Phlegraean Fields near Naples, as well as to take a sample of gases from volcanic fumaroles and store them in a glass vessel.[67] While it is not always mentioned by Balfour, local "invisible collectors" were crucial to the collecting enterprise.[68] Their expertise would also ensure a safer way of acquisition, and Balfour asked Murray to procure for him "a Viper or two" at Blois, he advised that Murray should not "medle with them your self, because there is Danger, but imploy one of those fellows that brings them to the Apothecaries, who for a small matter will do it."[69] The collecting of marine curiosities from the sea also required

[62] On *herbaria*, see Ogilvie, *Science of Describing*, 165-174. One of the only items of Balfour's collection which can be traced into the later eighteenth century was his *Hortus Siccus* of plants, which appears as the entry an "old Hortus Siccus of Foreign and Officinal Plants. Supposed to be that of Sir Andrew Balfour," in a catalogue drawn up by John Walker from the museum of James Nasmyth (2nd baronet, d. 1779) of Posso's, EUL Dc 1.18, 27v.
[63] Balfour, *Letters*, 33.
[64] Sibbald, *Memoria Balfouriana*, 69-70.
[65] Balfour, *Letters*, 212-3.
[66] Balfour, *Letters*, 24-25, 50, 110.
[67] Balfour. *Letters*, 177-8.
[68] The concept of "invisible technicians," has been described in Shapin, *A Social History of Truth*, 355-408.
[69] Balfour, *Letters*, 63.

local knowledge and skill, and Balfour advised Murray for that purpose to "provide Creepers [hooked instruments], which the Seamen know how to use," and to ask at the Marseilles fish market for rare specimens.[70] The stonecutters working on the Medici chapels in Florence could be persuaded to part with some small pieces "of all the species of stones" in use there, and Balfour requested two larger specimens of decorative marble for himself, which he aimed to frame "as Chief ornament of my Tradescants."[71] Other "Outlandish Curiosities," particularly those from the East, could be purchased at markets in Venice or Naples, and Balfour requested a Venetian stiletto, a pair of Armenian shoes, some black sashes and some Ancient Glass.[72] Once collected, items like plants should be stored in a box "close packt up, (as you have seen mine)," and thus could be sent from the nearest harbour.[73] Balfour's instructions to Murray show his own experience with collecting specimens, but he often advised Murray to exercise his own judgment and taste.[74] This emphasised the social status of the young Laird of Livingston as a budding connoisseur but also recognised that detailed collecting instructions would be not much use during a lengthy journey that required flexibility in local conditions.[75]

What emerges from Andrew Balfour's instructions is an emphasis on the rare, exotic and curious, shared with his older brother. However, unlike James Balfour's antiquarian and courtly knowledge, Andrew Balfour used his medical training and his personal experience with a wide range of natural historical particulars to create a showroom for his varied *virtuoso* interests in the form of a museum.[76] Balfour aimed to create a sizable private collection and did not attempt to emphasise any particular geographical or thematic direction in his collection of natural knowledge. Balfour also made it clear to people like

---

[70] Balfour, *Letters*, 40-50. The centrality of informal fish-market knowledge for early modern naturalists has been stressed by Didi van Trijp, "Fresh Fish: Observation up Close in Late Seventeenth-Century England," *Notes and Records: The Royal Society Journal of the History of Science*, vol. 75, 3 (2021): 311-332.
[71] Balfour, *Letters*, 107-8.
[72] Balfour, *Letters*, 272-274.
[73] Balfour, *Letters*, 61, 178.
[74] For instance, when advising to preserve fish bought at the Marseilles market Balfour simply stated: "you will find inventions to do it." Balfour, *Letters* 50.
[75] Even where collecting instructions were printed for collectors of the same or lower social status, like in James Petiver's (c.1665-1718) *Brief Instructions for the Easie Making and Preserving Collections of all Natural Curiosities*, the emphasis was on the exercise of judgement of the collector. Charles E. Jarvis, '"Take with You a Small Spudd or Trowell": James Petiver's Directions for Collecting Natural Curiosities', in *Naturalists in the Field*, ed. Arthur MacGregor (Leiden: Brill, 2018), 212-39. See also section 7.3.
[76] Close to the earlier seventeenth-century meaning of *virtuoso* as a discerning collector (primarily of antiquities), Yeo, *Notebooks, English Virtuosi, and Early Modern Science*, 6-7.

Murray that he had deep pockets and repeatedly stressed that the young laird of Livingstone would be reimbursed, if necessary, for costs incurred.[77] However, as James Delbourgo has emphasised, the amount of agency that the collectors possessed in this self-fashioning process must not be overstated. Delbourgo shows that the identity of Hans Sloane as a collector of exotic objects was not the result of "any single-minded strategy on" his part, but rather because "it was contemporaries' identification of Sloane, the natural historian of Jamaica, as interested in the things and bodies of slaves."[78]

Just as Sloane became the unprompted recipient of objects, the creation of the universal collecting persona meant that Balfour became the go-to person in Scotland to receive unusual curiosities. In the spring of 1683, the Aberdeen apothecary Matthew Mackaile (fl. 1657–1696) sent Sibbald in response to his chorographical queries that led to the *Scotia Illustrata*, a series of letters with information regarding, among other things, two wells at Dumbarton, accounts of extra-marital sexual activity in Caithness, a report of diseases caused by witchcraft in the same place, and observations regarding the stalactites at Slains and the lead mines in Fife.[79] While some of this was useful for Sibbald's project, for the physical specimens it was Andrew Balfour and not Sibbald, who was the addressee: "Three years ago Mr Patrick Clunies, minister at Week in Caithness, informed me that there was a marsh not far from his house, out of which one might dig as many stones called thunder-bolts [*belemnites*] as they pleased, and gave me a very large one of them, which, I believe, I gave to Dr Balfour."[80] Sibbald did occasionally receive physical specimens in response to his queries, but Sibbald did not present himself as a centre of acquisition of curious objects. Writing from Dumfries in response to Sibbald's queries, George Archibald sent Sibbald a "*tibie efformata fossilis*," a "*Cornu Cervi fossile*," and a "stone, which is like the Bristol Stones."[81] However, these times were accompanied by the express wish to return all of these items to the sender.

---

[77] For instance, when purchasing corals at the market: "I shall hold you good accompt, for all expenses," Balfour, *Letters*, 49.
[78] James Delbourgo, "Collecting Hans Sloane," in *From Books to Bezoars: Sir Hans Sloane and His Collections*, ed. Alison Walker, Arthur MacGregor, and Michael Hunter (London: British Library, 2012), 18.
[79] Mitchell, ed., *Geographical Collections*, vol. 3, 7-14. On Mackaile, see page 27.
[80] Mitchell, ed., *Geographical Collections*, vol. 3, 12.
[81] Mitchell, ed., *Geographical Collections*, vol. 3, 192.

By contemporary accounts, Andrew Balfour's private museum became one the most substantial Scottish collections of *naturalia* and *artificialia* in seventeenth-century Scotland. Again, Robert Sibbald appears as the most important source, and in a speech given on the occasion of the opening of the Balfourian museum at the university in 1697, Sibbald praised Balfour as the "first man yt was famous in our Country for ane Universall collection."[82] Sibbald contrasted a universal collection, such as Andrew Balfour's, with those that were "particular and consist only of some productions of Nature or Art."[83] Such a "particular" collection might "consist of only of one the three Kingdoms of Nature… Vegetable, Animal or Minerall," or might even be more restricted to herbaria of dried plants, "curious Animals preserved in Spirituous liquours," skeletons, horns, minerals, earths, salts, sulphurs and petrifactions, or concerned itself solely with one category of *artificialia*, such as coins and medals, statues, figured stones with inscriptions, religious artefacts, machines of war or decorative arts such as pictures and engravings.[84] Sibbald's detailed list suggested that the value of Andrew Balfour's collection was that it contained all of these.

Balfour's acquisitive nature became noted by his contemporaries, although not always in a complimentary manner. The anonymous writer of a 1685 satirical poem about the physicians of Edinburgh, described Andrew Balfour as a man with a "ridiculous nose," whose drunkenness had reduced him to be confined mostly to bed, where

> *to gather some Meddalls was the most of his witt -*
> *And poore blind Sutherland cane alwayes doe that.*[85]

This image of the *virtuoso* whose collecting required very little discernment or intelligence, echoed contemporary English satires, particularly Thomas Shadwell's *The Virtuoso* (1676), described as the "most famous eighteenth-century satire of science on stage," which caricatured vain and useless pursuits of the *virtuosi*.[86] In one of these plays, Thomas D'Urfey's *Madam Fickle* (1676), the patriarch Sir Arthur Oldlove, stands in his curiosity cabinet, distracted from his duties, "rediculously dressed, hung with medals," and exalts the

[82] EUL MS La III 535, f. 1r.
[83] *Ibid*.
[84] EUL MS La III 535, f. 1r-1v.
[85] NLS MS 2257, f. 2, Balfour's nose was also the target of another invective, NLS MS 2257, f. 3.
[86] Al Coppola, *The Theater of Experiment: Staging Natural Philosophy in Eighteenth-Century Britain* (Oxford: Oxford University Press, 2016), 42.

joys of collecting: “Is there anything more pleasant than antiquities?”[87] Similarly, the writer of the Edinburgh poem caricatured Balfour as someone whose drunkenness and collecting nature prevented him from concerning himself with the intellectual work that should be proper to the physician.[88] A concern with numismatics, picked out by the caricaturist as neither befitting the physician nor the botanist James Sutherland, is presented as requiring little skill or intelligence and could be performed by the inebriated as well as the short-sighted.

However, elsewhere, Balfour’s self-fashioning as a cosmopolitan well-travelled erudite *virtuoso* was more successful. Sibbald reproduced several inscriptions and epitaphs in praise of Balfour in the *Memoria Balfouriana*, written by his fellow physicians, all of which emphasise the breadth of Balfour’s knowledge of the natural world, and the extent of his museum collection.[89] Praise came not only from Balfour’s closest friend, kinsman and fellow collector Robert Sibbald but also from physicians in the Edinburgh medical community who showed little interest in collecting, like Archibald Pitcairne. Composing an epitaph for Balfour on the latter’s death in 1694, Pitcairne had Balfour say: “I lived as long as the land brought me things I had not seen before, as long as Neptune’s realm produced new monsters for me. For I have now seen everything which the entire earth brings forth, everything which the wave of rich Tethis bears.”[90]

The role models of the collector, both the courtly antiquarian connoisseur in James Balfour’s case, as well as the learned, voracious enquirer into the rare and exotic in Andrew Balfour’s case, presented Sibbald – who had a considerable hand in cementing these personas – with the opportunity of shaping his scholarly self. While Sibbald presented his own collecting as a means to both didactic and scientific ends, he took from the Balfours not only the techniques, the emphasis on the curious, and the language of description; he also inherited custody, although not possession, over a large part of their collection, both James’

---

[87] Coppola, *The Theater of Experiment*, 55.

[88] Wine-fuelled gregariousness was not limited to Balfour. His friend, the Savillian Professor at Oxford, David Gregory, drank a particularly notable claret, together with Andrew Balfour, to the health of his friend Arthur Charlett, before going to Aberdeen to taste a fresh shipment of Florentine wine, Bodleian MS Ballard 24 f. 30 via EMLO. Sibbald, *Memoria Balfouriana*, 83.

[89] Sibbald, *Memoria Balfouriana*, 94-100. In an epitaph Archibald Stephenson wrote that Balfour “collected everything the earth and aether brought forth in his museum,” *ibid.*, 100.

[90] Pitcairne, *The Latin Poems*, 149.

manuscripts and Andrew’s curiosities. The following chapter will explore how, by adding his own collection, Sibbald sought to establish an expanded audience and addressed the question of how to institutionalise a private museum into a working institution.

Chapter VI – The Museum Balfourianum and the *Auctarium Musaei Balfouriani* (1697)

6.1 The problem of institutionalisation: Balfour's collection

Andrew Balfour died in January 1694 after what Sibbald described as a long-lasting arthritic illness and painful gout, indicating that the image painted by the writer of the satirical poem of a bed-bound physician was perhaps not too far off the mark.[1] Sibbald inherited Balfour's manuscripts and his substantial library was auctioned off in February 1695 in individual bids.[2] Balfour's most famous asset, however, his collection of *naturalia* and *artificiala*, did not go to a private individual. Instead, it was purchased in May 1695 by the town council of Edinburgh from Balfour's heritors for the use of the town college, then governed by the council.[3] The municipal purchase of a wholesale collection of this kind was unusual. Most early modern collections made it into the hands of other private collectors after the decease of their owners. Often these collections became divided and disbursed after the death of the collector since collectors were interested in only one part of the collection.[4] Other collections remained intact but merged into a larger collection like those of Hans Sloane, who acquired his contemporaries' collections, in an "almost cannibalistic" manner.[5] The Edinburgh town council act noted that there were "several persons" interested in purchasing Balfour's collection and that the council was given the preferential price of four hundred pounds Scots, even though rival bidders had offered one and a half

[1] Sibbald, *Memoria Balfouriana*, 90-1.
[2] Andrew Balfour, *Bibliotheca Balfouriana, sive catalogus librorum, in quavis Lingua & Facultate Insignium Illustris Viri D. Andreae Balfourii M.D. & Equitis Aurati* (Edinburgh: Heirs of Andrew Anderson, 1695).
[3] *Extracts from the Records of the Burgh of Edinburgh 1689-1701*, ed. Helen Armet (Edinburgh: Published for the Corporation of the City of Edinburgh by Oliver and Boyd, 1962), 173-4, hereafter *Burgh Record Extracts*. Where necessary, the extracts have been supplemented by accessing to the full Burgh Records kept in the Edinburgh City Archives GB236/SL1/1.
[4] These are the legal forces of dissipation, which, together with moral and physical forces of dissipation, have been identified as competing with the forces of preservation in a collection by Boris Jardine, Emma Kowal, and Jenny Bangham, "How Collections End: Objects, Meaning and Loss in Laboratories and Museums," *BJHS Themes* 4 (2019), 3.
[5] Delbourgo, *Collecting the World*, 210.

times as much.[6] This seems a relatively modest price for a substantial collection, particularly since the wording of the act indicates that the purchase included the bulk of Balfour's collecting efforts, and therefore a "complete" collection.[7]

By purchasing Balfour's collection the council took the step to institutionalise what had been the fruit of over thirty years of Balfour's work and put it into public ownership. There were famous examples of private collections making the transfer to municipal ownership. Among them were two of the most well-known early modern collections: that of the "Bolognese Aristotle" Ulysse Aldrovandi (1522–1605), and that of the collection which, in 1683, became the Ashmolean Museum in Oxford.[8] However, institutionalising a private collection like Balfour's was not straightforward, not least because, by their nature, collections were invariably bound to the personality of the collector. The collector served as a personal guide through the collection, which reinforced patronage collections.[9] As the previous chapter showed, the personal collections of James and Andrew Balfour were an extension of their *virtuoso* personas as courtly official and naturalist physicians respectively. The act of purchase by the council recognised that part of the attraction of Andrew Balfour's collection was that it was associated with the famed collector, and specified that, after the purchase, it "should be kept in the Colledge of Edinburgh in ane Closet to be called Musaeolum Balfurianum[sic]."[10]

In addition to the loss of the personality of the collector, the transition from a private to a public museum meant that the intimacy of the personal private space, reserved for the collector and close friends or acquaintances and preserved by access restrictions and

---

[6] *Burgh Record Extracts* 1689-1701, 173-4. Since the exchange rate with the Pound Sterling was set at 12:1, this equated to around £33 Sterling.

[7] Part of Balfour's collection, including a boat mentioned in footnote 24 below, seems to have been transferred to the college of the Physicians before Balfour's death, and while legally it should have been transferred to the Balfourian Museum at the town college, it still remained until at least 1723, Murray, *Museums, Their History and Their Use*, 155. There is an extant inventory of Andrew Balfour's collection at the College Hall, probably drawn up by James Paterson shortly before his departure for England in 1702 (EUL MS Gen 1801/6). Due to incomplete cataloguing, this inventory was only found late in the process of writing this thesis and has, therefore, not been analysed fully in this chapter.

[8] Findlen, *Possessing Nature*, 24-31, and 147-8.

[9] Hans Sloane in London guided his visitors through his collection, before having coffee with them, Delbourgo, "Collecting Hans Sloane," 12; Martin Lister noted the various naturalists who guided visitors through their collection, see Martin Lister, *A Journey to Paris in the Year 1698* (London: Jacob Tonson, 1699), 57, 61, 72, 104 and 130.

[10] *Burgh Record Extracts* 1689-1701, 174.

physical barriers, could not easily be maintained in a public institution.[11] Balfour had seen various collections in France and Italy during his travels and was familiar with the procedures which governed their access, as he related in his letters to Murray.[12] Balfour kept his collection in his private house and had, not long before his death, instructed an architect to construct a library and museum to his specifications.[13] While the council act stipulated that the Balfourian museum should be kept in a separate chamber or closet, there was no clarity on the rules of access which were to govern the planned institution.

The act also gave no clear answer as to what purpose the collection should serve, and merely noted that Balfour's executors and friends, which probably included Robert Sibbald, were "desyrous that the saids rarities shuld be bought for the use of the Colledge of Edinburgh."[14] The college library already had a collection of curiosities, assembled piece-by-piece from donations and kept in the upper hall of the college, which was used for "all College entertainment and business of moment," as a visitor in 1688 described it.[15] However, that collection, which included items like a large palm leaf, a speaking trumpet and a "Sea-horse Pissle two yards," seemed to have served mainly as a showy display of curiosities and as a repository for notable donations from eminent people who wished to extend their patronage connections to the college.[16] The act of purchasing Balfour's collection, however, indicated that the Museum Balfourianum, as it came to be called, was to be used in some didactic capacity. Sibbald, who had been asked to give a speech on the opening of the Balfourian Museum in 1697, stated that the new museum of "Nature and Arte & Noble Work," was "designed for the Good of the publick and the instruction of all that are desyrous to Learne and Understand these things."[17] Perhaps in an attempt to encourage closer institutional ties between the city's medical institutions and the town college, Sibbald also expressed the wish that the museum space in the college common hall

---

[11] Findlen, *Possessing Nature*, 109-110.
[12] Findlen, *Possessing Nature,* 132-3. Balfour, *Letters*, 96.
[13] "tandem fere Sexagenarius, cum egregio Architecto stipilatus est, ut Domui vendendae, pergulam satis longam adjiceret ex Fundamentis extruendam; quae Libris et rebus rarioribus continendis sufficeret,"Sibbald, *Memoria Balfouriana*, 90.
[14] *Burgh Record Extracts* 1689-1701, 173-4.
[15] Alexander Grant, *The Story of the University of Edinburgh During Its First Three Hundred Years*, vol. 1 (London: Longmans, Green, and Company, 1884), 374-5. C. P. Finlayson and S. M. Simpson, "The History of the Library 1580-1710," in *Edinburgh University Library, 1580-1980: A Collection of Historical Essays*, ed. Jean R. Guild and Alexander Law (Edinburgh: The Edinburgh University Library, 1982), 53-4.
[16] Grant, *The Story of the University of Edinburgh*, 375.
[17] EUL MS La III 535 f. 1.

might be used by the physicians of the city to meet and "make some of your conferences," and he cited the collection of the Royal Society in London as a favourable example.[18]

The establishment of the Balfourian museum came at a time when the council made attempts to improve the teaching spaces of the town college after the Revolution. The college principal, Gilbert Rule (c. 1629–1701), had been present at the meeting approving the purchase, although there is little indication that he played a decisive role in the museum's governance.[19] Indeed, during the 1690s council and principal were often at odds with defining the role of the town college, and while the council aimed to establish an "illustrious school," Rule's preference seems to have been for an orthodox Presbyterian teaching college, whereas his successor William Carstares (in office, 1703–15), was more amenable to reform.[20] The council's vision for a learned institution modelled on Dutch universities seems to have made some inroads, and a separate council act had stipulated that the college garden should be planted "with herbs and plants and other necessaries," by the Professor of Botany, James Sutherland.[21] This garden was separate from the larger physic garden of Edinburgh, which was more closely associated with the Royal College of Physicians and which had been established by Sibbald, Andrew Balfour and Sutherland around 1670.[22]

At the time, other city institutions made similar attempts to add to their institutional fabric. Among these was the College of Physicians which from 1683 started to assemble a library mostly from member donations.[23] The library space also seems to have included rarities, and by the time of Balfour's death, some of his collection might have made it into the meeting hall of the physicians.[24] The ascendant College of Surgeons made similar moves,

---

[18] EUL MS La III 535 f. 3.
[19] Nicholas Phillipson, "The Making of an Enlightened University," in *The University of Edinburgh - An Illustrated History*, by Robert D. Anderson, Michael Lynch, and Nicholas Phillipson (Edinburgh: Edinburgh University Press, 2003), 56.
[20] Phillipson, "Making of an Enlightened University," 53-6. Mijers, *"News from the Republick of Letters*," 111-3.
[21] *Burgh Record Extracts* 1689-1701, 1 February 1695, 168.
[22] Fletcher and Brown, *The Royal Botanic Garden*, 11-19.
[23] Craig, *History of the Royal College of Physicians*, 120-1.
[24] The only conclusive reference to an earlier collection at the college of physicians is the mention of a boat in the "Physician's hall" in James Wallace, *A Description of the isles of Orkney* (Edinburgh: John Reid, 1693), 28. The college minutes indicate that this boat had been part of Balfour's collection and was meant to be transferred to the Balfourian museum at the university after Balfour's death as a gift. RCPE minutes, 24 September 1696. See also Dale Idiens, "Eskimos in Scotland: c. 1682–1924," in *Indians and Europe: An Interdisciplinary Collection of Essays*, ed. Christian F. Feest (Lincoln: University of Nebraska Press, 1999), 172-3.

and after completing their new hall in 1697, had a public advertisement placed in the *Edinburgh Gazette* in October 1699 asking for donations of books on medicine, as well as contributions to their planned "collection of all natural and artificiall curiosities," which managed to attract the attention of the naturalist James Petiver (c. 1663–1718) in London.[25] The advertisement made it clear that donor's names would be "honourably recorded and if they think not to bestow them gratis they shall have reasonable prices for them."[26] The indiscriminate request for curious items indicates that prestige, rather than a specific didactic purpose lay behind the advertisement.[27] The accessions which were recorded confirmed this, and among the early donations to the surgeons can be found items of natural history with colonial collections, including an African gourd from merchant James Balfour (not to be confused with the brother of Andrew Balfour), as well as an American wasp nest and a young crocodile donated by Sibbald's associates, the geographer John Adair and the physician Charles Oliphant respectively.[28] The surgeon's collection did include some Scottish items, such as a "large eel skin stuft and taken in Cramond Water," and several shells and sea sponges from the North of Scotland, donated by Dr Drummond, but while Archibald Pitcairne's donation of a skeleton shows some didactic purpose, the precise aims of the surgeon's museum are unclear.[29]

Unlike the piecemeal assembly of rarities by the early college library and the collections of the physicians and the surgeons, the Balfourian Museum represented a complete private collection. This meant that, while Balfour's collection presented a substantial acquisition, the institutionalisation efforts also depended on an accurate account of what the collection comprised. Inventorying and cataloguing Balfour's collection, however, seems to have been one of the main barriers to its conversion into a useful teaching resource, and over the next

---

[25] Clarendon Hyde Creswell, *The Royal College of Surgeons of Edinburgh: Historical Notes from 1505 to 1905* (Edinburgh: Oliver and Boyd, 1926), 70.
[26] Creswell, *Royal College of Surgeons,* 70.
[27] Creswell, *Royal College of Surgeons*, 70.
[28] Creswell, *Royal College of Surgeons,* 68-9.
[29] Dingwall, *"A Famous and Flourishing Society,"* 57-8. For Pitcairne, see page 89. Defoe, writing in the early 1720s, described the surgeon's collection as "a chamber of rarities, in which are several skeletons of uncommon creatures, a mummy, and other curiosities," Daniel Defoe, *A Tour through the island of Great Britain divided into circuits of journies*, ed. Samuel Richardson, 8th Edition, vol. IV (London, 1778), 77. The collection was given to the university in 1764, Charles Withers, "'Both Useful and Ornamental': John Walker's Keepership of Edinburgh University's Natural History Museum, 1779-1803," *Journal of the History of Collections* 5, no. 1 (1993), 66.

ten years, the council consistently, but unsuccessfully, tried to have an inventory of the Balfourian museum drawn up. Even though the sale of Balfour's collection had been accompanied by a catalogue, this cannot have been very detailed, as it was read in full during the council meeting which enacted the purchase.[30] The council appointed Robert Edward in the "puting up and classing of the rarities in the Colledge in their places, and in making of a Catalogue which consisted of not under fourteen or fifteen sheets of paper," for which he was to be paid 100 pounds Scots.[31] The ageing Robert Edward (c.1616–1696) had been minister of Murroes parish, near Dundee, had written a description of Angus County in 1678, and had also been one of Sibbald's correspondents on geographical and natural historical matters.[32] While this might have qualified him for the task, Edward died soon after his appointment, and by August 1696, there seems to have been no complete catalogue.[33] Whereas, as the following section will show, Sibbald did get involved in recording the contents of Balfour's museum before its opening in 1697, it is unclear how far he got, and when the council ordered a catalogue to be printed "of the rarities within the Colledge of Edinburgh," it was Sibbald's *Auctarium* rather than an account of Balfour's collection which was printed.[34] One of the main reasons for the council's interest in drawing up an inventory was the protection of its investment. To that purpose, a visiting committee in 1698 ordered the university janitor, Mr James Young to "inventar [the rarities] at the sight of the principal and regents ...and appoints two duplicats of the said Inventar of the rarities to be signed by the janitor the one to lye in the Colledge and the other to lye in the toun Clerks hands for the Councills use."[35] A year later, in May 1699, the council seemed to have found an apparent solution to the problem of cataloguing, by appointing James Paterson as keeper of the rarities, and allocating him the relatively modest sum of 100 Pound Scots annually for the task of making "inventar of the Samen" and to "give paines to *understand these rarities exactly* so as to give a reasonable accompt of them when demanded."[36] A more detailed

---

[30] City of Edinburgh Burgh Records, 1694-7, f. 188.
[31] *Burgh Record Extracts* 1689-1701, 19 August 1696, 200-1.
[32] Withers, *Geography, Science and National Identity,* 258-9.
[33] *Burgh Record Extracts* 1689-1701, 19 August 1696, 200-1.
[34] *Burgh Record Extracts* 1689-1701, 24 Nov 1697, 222.
[35] *Burgh Record Extracts* 1689-1701, 29 June 1698, 233-4. Mr Young had only been appointed janitor a few months previously, City of Edinburgh Burgh Records, 11 March 1698. Although Young's background has not yet been established, by this time, the office of janitor of the college, responsible for door-keeping and some maintenance, often carried out by bookbinders. Grant, *The University of Edinburgh*, 141-2
[36] City of Edinburgh Burgh Records, 1697-1701, 5 May 1699, f. 204, emphasis added.

consideration of James Paterson and his role as a keeper, as well as his departure from the post in 1701, will be given in chapter VII, but it is notable that, like Edward, Paterson's task was not only of one of recording but also of understanding the collection.

By inventorying the collection, the council sought to protect it from decay and theft. The committee visit in 1698 reported that specimens of the museum were in danger of being damaged or lost, a mere three years after they had been acquired.[37] The committee report concluded that the "rarities of the Colledge were out of order and many of them like to perish for want of a fitt persone to oversee them."[38] To prevent this, the committee ordered the janitor James Young to spend the nights in the college. However, a year later the committee found matters unchanged and several of the rarities "perished and more perishing."[39] A later visit, in 1703 identified that it was probably museum visitors, rather than night-time theft that were to blame for some of the damage, and found that, despite the attempt to put mesh wire in front of the cabinets, "students and others comeing to sie them by putting in their fingers into the holes did disordor and possiblie might imbazell some of them."[40] The report of the 1703 visit also gave the only description of the physical layout of the university collection, which probably did not help discourage theft. Instead of the allocated separate chamber, the collection was kept in three presses (cupboards) along the east and west walls of the upper Common Hall of the college, one bearing the inscription *Senatores populusque Edinensis Accademe[nsis] parens et fatuor* ("The council and people, parents and patrons of the college of Edinburgh").[41] Items from the library's curiosity collection also seem to have migrated to the hall, including the speaking trumpet, as well as maps and mathematical instruments, pictures, and books, some of which were lying loosely in that space.[42] To facilitate oversight, the council appointed the college librarian Robert Henderson (in office 1694–1747) to the post of keeper and tasked him with creating an inventory which recorded accessions, promising to recompense Henderson according to the council's discretion. Henderson's appointment in effect merged the older library collection of rarities to Balfour's collection, as the commission decided to have the

---

[37] *Burgh Record Extracts* 1689-1701, 29 June 1698, 233-4.
[38] *Ibid.*
[39] *Burgh Record Extracts* 1689-1701, 29 June 1698, 233-4; and 5 May 1699, 246.
[40] *Burgh Record Extracts* 1701-1718, 19 May 1703, 48.
[41] *Ibid.*
[42] *Ibid.*

older rarities, most of them acquired under Henderson's father William (d.1684), added to the new inventory. This also meant that the Balfourian Museum lost its status as an independent entity less than ten years after the council purchased it. A further attempt at finding a qualified keeper of the collection was made a couple of years later when the council appointed the surgeon Robert Eliot to be both anatomy teacher at the college as well as keeper of the rarities, paying him £15 Sterling.[43]

During all this time, there is little indication that the council found a useful role for the Balfourian Museum as a teaching collection. While part of this was due to the insecure role of the university itself, and the lack of a dedicated teacher of natural history, the problem also arose from the nature of Balfour's collection, which had been closely bound to the persona of the cosmopolitan collector. In his account of Balfour, Sibbald indicates that the collector did establish a classification system in his museum, and he listed several instances where Balfour made use of his collection to make decisions on particulars of nature, such as the contested specimen of the goose barnacle.[44] However, since there is little indication of how Balfour ordered or described his collection, much of Balfour's knowledge was lost with his death, and as the council's desperate attempts to draw up an inventory for his collection shows, irrecoverably so. The unsuccessful efforts by the council in even establishing an inventory of the collection by subsequent aged, untrained and underpaid people employed with that task shows the difficulty of even protecting the integrity of the Balfourian Museum collection, although the keepership of James Paterson provided a brief opportunity to establish the museum as a node of scientific correspondence, as will be shown in Chapter VII. The person perhaps the most qualified for the task of making sense of Balfour's collection was Robert Sibbald, but he was not employed in a teaching capacity, and any work with Balfour's collection seems to have been unpaid.[45] He also seems to have recognised early the difficulty of the task of institutionalising a private collection after the death of the collector, and while there are indications of Sibbald's attempts to make

---

[43] City of Edinburgh Burgh Records, 1704-1707, 29 August 1705, f. 354. Creswell, *Royal College of Surgeons*, 195.

[44] Sibbald, *Memoria Balfouriana*, 76-7.

[45] While Sibbald had been made Professor of Medicine on 1 March 1685, he did not take up any teaching position and after the revolution his uncertain confessional leanings might have prevented him from doing so anyway. Emerson, *Academic Patronage*, 315.

Balfour's collection useful, his solution on how to teach natural history via museums was the establishment of a separate collection from scratch.

6.2 The *Auctarium Musaei Balfouriani*

Sibbald's *Auctarium musaei Balfouriani, e musaeo Sibbaldiano* ("The addition to the Balfourian Museum from the Sibbaldian Museum"), published in 1697 is the sole printed catalogue of a museum collection in seventeenth-century Scotland.[46] The title of *Auctarium* ("addition") can be seen as a mirroring of Sibbald's use of the designation *Prodromus* ("forerunner") for his *Scotia Illustrata*. Despite their modest titles, both works aimed to encompass the entirety of the scope of nature, even though neither aimed to describe all of its particulars. The *Auctarium* catalogue represents Sibbald's didactic vision for museums and the practice of collecting which he saw building on the collecting practices of his cousin Andrew Balfour.[47] The collection it described was donated by Sibbald to the town college in 1697, at the same time as the Balfourian museum, with which it shared a space, was opened. Even though Sibbald's *Auctarium* collection was much more modest than Balfour's in its extent and geographical scope, and even though the *Auctarium* title emphasised the rarity of its specimens, Sibbald seems to have conceived his collection as the beginnings of a didactic entity that could encompass the entirety of nature and human endeavour. And although in this aim, Sibbald's *Auctarium* collection was ultimately not any more successful than the Balfourian collection, it differed in that it had institutional ambitions from the outset. The clearest indication that Sibbald saw the Balfourian collection as insufficient for teaching purposes was the printing of the *Auctarium* itself. When, in November 1697, the

---

[46] The full title is Robert Sibbald, *Auctarium musaei Balfouriani, e musaeo Sibbaldiano, sive, enumeratio & descriptio rerum rariorum, tàm naturalium quam artificialium, tàm domesticarum quàm exoticarum; quas Robbertus Sibbaldus M.D. eques auratus, academiae* Edinburgenae *donavit*. A digital version of the catalogue can be accessed at René Winkler, "Robert Sibbald's Auctarium Musaei Balfouriani," 2024, https://auctarium.omeka.net/.

[47] While sometimes called Sibbaldian Museum in the historiography, Sibbald's collection, unlike the Balfourian Museum, did not seem to have been designated a separate name, although Defoe during his *Tour* sometime during the early decades of the eighteenth century, notes that "Sir Robert Sibbald, having a mind to engraft his name and merit on that of the celebrated Balfour, made a present of a great number of shells and other curiosities, to the college," indicating that the separation of the collections was maintained, Defoe, *A Tour Through the Island of Great Britain*, 79.

council allocated funds for the printing of three hundred copies of an account "of the rarities within the Colledge," Sibbald had, with or without the approval of the council, these funds diverted for the printing of solely his part of the collection.[48] As the *Auctarium* catalogue shows, Sibbald anchored his collection historically, and for him, the collecting, ordering and display of nature in the space of a museum represented a modern method, albeit one which reinforced ancient virtues of observation.

Like Andrew Balfour, Sibbald had been a collector of natural history, ever since his return from the continent in 1662.[49] However, while Sibbald presented Andrew Balfour as the archetype of a learned collector and probably emulated some of his collecting practices, he did not seem to have placed the same emphasis on curating the personality of a *virtuoso* collector, nor did he share his kinsman's predilection for the foreign or exotic. While some evidence of his participation in a collection culture comes from his letters to people like Hans Sloane, Martin Lister, William Nicholson and Robert Wodrow, the main direction of Sibbald's collecting can be discerned from the *Auctarium* catalogue itself.[50] After the death of Andrew Balfour in 1694, Sibbald became one of the main nodes of correspondence for specimens from Scotland and elsewhere. However, Sibbald did not possess Balfour's deep pockets, and while the extent of his collection is hard to gauge, there is little to suggest that he curated the sort of *virtuoso* showroom, which was associated with Balfour. Sibbald did keep at least some of his curiosities at his town lodgings in Carrubber's Close in Edinburgh, which was also the space used for the bi-weekly meetings of the physicians before the Physicians hall was completed, but whether these meetings were held in a museum space is not recorded.[51] It seems probable that the majority of his collection was kept at his country estate at the Kipps, where Sibbald spent a considerable amount of time, although when he directed the Ashmolean curator Edward Lhuyd to visit his estate in his absence, Sibbald did not mention his collection.[52] Sibbald seems to have regarded his collection as a private

---

[48] *Burgh Record Extracts* 1689-1701, 24 Nov 1697, 222.
[49] Sibbald, *Memoirs*, 65.
[50] Among Sibbald's letters to Sloane in which he either sent or received specimens are in EUL Dc 8.35 5 are: June 1696, ff. 1-2; 29 December 1698, ff. 5-10; 13 June 1699, f. 11; 26 June 1699, ff. 13-15; 12 June 1701, ff. 19-20. For Sibbald and Lister, see Chapter II. For Wodrow and Nicholson, see Chapter VII.
[51] Sibbald, *Memoirs*, 75. During a fire in his town house in 1684, Sibbald reported that in addition to his books, his curiosities were thrown out into the garden, and several of them were stolen, Sibbald, *Memoirs*, 84.
[52] Robert Sibbald to Edward Lhwyd, [n.d.] 1699 or 1700, Bodleian MS Carte 269, ff. 129-133 via EMLO. See also page 96.

retreat, and remarked that the enclosed space of his study was where he could, "delight my self at home with the contemplation of the wonderfull wonder of God while ther is litle pleasure in looking abroad in the world."[53] It is, however, from Sibbald's private collections from which he furnished not only material for the *Auctarium* collection but also for another institutional collection which he offered to the Edinburgh College of Physicians in 1706.[54]

As Chapter VII will show, Sibbald was by no measure the only collector, donor or recipient of specimens in Scotland, although he often presented himself as the main collector-naturalist in Scotland, particularly to members of the Royal Society in London.[55] Even someone like Archibald Pitcairne, whose natural historical interest was probably eclipsed by his mathematical ideas on medicine, took part in the social enterprise of the collecting and exchange of specimens of natural history and contributed, for instance, to Hans Sloane's vast collecting empire. In a letter written in 1701 to Hans Sloane in London, Pitcairne sent via a bearer "who is a knowing man, & a good mathematician," a stone from Angus which was endowed with a violet smell and promised also a gift of petrified moss and "some things with the historie of them."[56] However, Pitcairne made it clear that this gift, along with promises of more to come was "only to a comarade, not to a secretarie of the Royal societie."[57] Pitcairne was acutely aware that by presenting Sloane, the collector, a personal gift which was not bound to the Royal Society or its museum, could procure useful personal patronage with the influential English doctor in other matters, particularly during a time when Pitcairne was ostracised from the Royal College of Physicians in his home city.[58] By contrast, when Sibbald offered to send Martin Lister some shells from Scotland in 1696, the offer was accompanied by a detailed list that identified species and characteristics of each available specimen, which showed that Sibbald not only saw himself embedded in a gift economy but also within a community of knowledgeable naturalists.[59] Unlike Pitcairne's letter, Sibbald's offer was printed in full in the Society's *Philosophical Transactions*, and

---

[53] EUL MS La III 535 f. 4.
[54] Robert Peel Ritchie, *The Early Days of the Royall Colledge of Phisitians* (Edinburgh: George P. Johnston, 1899), 127-8.
[55] Letters and reports by Sibbald published in *Philosophical Transactions* are in vol. XIX (1696), 321-325, vol. XX (1698), 264-267, vol. XXII (1702), 693, vol. XXV (1706), 2314-2317, vol. XXVI (1710), 453-478.
[56] Pitcairne to Sloane, 29 September 1701, *Best of Our Owne*, 37.
[57] *Ibid*.
[58] Pitcairne had already procured books for Sloane in 1698, Pitcairne to Sloane, October 1698, *Best of Our Owne*, 24-5.
[59] *Philosophical Transactions of the Royal Society,* vol. XIX (1696), 321-325.

while it is not clear if Sibbald eventually sent any specimens, many of them would have probably made their way into the Society's Repository. Even though, as will be seen below, the Repository was seen by Sibbald as the model of a learned institutional collection, Pitcairne and Sibbald's correspondence with Sloane and Lister came at a time when Society members reoriented its role, partly in response to a shift towards increased recognition of the role of personal patronage of its members.[60]

While the precise extent of Sibbald's collecting activities and network is difficult to gauge, the *Auctarium* provides some indication. Of the ca. 660 entries in natural history, only around 70 natural history entries have a recorded collector. Some of these include anonymous or invisible collectors, which are hidden in provenance records such as: "it was digged out of a Coal Pit," or "this was found sticking to a Whale," or by general designations which included particularly fishermen.[61] Among the named collectors, there are Scottish medical professionals and naturalists like Martin Martin, who was Sibbald's main source of knowledge regarding the north of Scotland and the Western Isles, Dr George Archibald in Dumfries, the Edinburgh surgeon Alexander Monteith, the mathematician David Gregory, as well as the others who are harder to identify with certainty. Some of the items derived from landed Scottish estates, including from the coal pits of Lord Sinclair at Dysart, the mines of the Duke of Queensberry, or the estate of William Bennet, laird of Grubbet, and from Sibbald's own estate at the Kipps. Among the landed collectors is the only named woman collector in the *Auctarium*, Anne, the Countess of Erroll, who is recorded as the donator of a stalactite from her estate of Slains in Aberdeenshire and of a portion of lime made from that stalactite.[62] Many of these named collectors appear as respondents to Sibbald's geographical queries, which show the relationship between Sibbald's acquisition of textual

---

[60] Alice Marples, "Scientific Administration in the Early Eighteenth Century: Reinterpreting the Royal Society's Repository," *Historical Research* 92, no. 255 (2019), 183-204.

[61] *Auctarium*, 67, 132. On the important role of fishermen in marine natural history, see van Trijp, "Fresh Fish: Observation up Close in Late Seventeenth-Century England," 311-332.

[62] *Auctarium*, 59. Erroll was also the only woman contributor to Sibbald's *Scotia Illustrata*, having supplied plates of depicting two birds, on Anne Erroll, see Raye, L. "Erroll [née Drummond; married name Hay], Anne, countess of Erroll (1656–1719), Jacobite and naturalist," *Oxford Dictionary of National Biography* [Online], 2019.

and material evidence.[63] Indeed, there are indications that Sibbald's chorographic queries were accompanied by material evidence from the localities he described.[64] Sibbald himself appears as the most-mentioned collector in the *Auctarium*, with fifteen entries, either alone or with the younger James Wallace from Orkney, mostly of items close to his estates near Edinburgh.[65] Only very few non-Scottish collectors are recorded in the *Auctarium*, most notably Sloane, who supplied the anti-scorbutic bark, *Cortex Winteranus*, from the Americas, and John Woodward, who contributed figured stones.[66]

The Scottish emphasis of much of the *Auctarium* not only pertains to the collectors but also to the objects. Of the around 230 natural history entries which include a geographic origin, the vast majority, around 170 are identified as Scottish, either generically (e.g. "found in this Country"), from a geographic area, such as the Western Isles, Orkney, Fife, or from a specific location ("from the Lord Duffus his Ground," or "I found it growing in Loch-cote Hills, in the Cleft of a Rock").[67] Many of the entries, including those which described the over 260 marine invertebrates which make up over a third of the whole collection, contain neither information about geographic origin, nor collector. However, many of these can be assumed to be of Scottish origin and were probably collected by Sibbald or his Scottish informants. While some items, such as Sloane's bark, and other *materia medica* like cinnamon and bezoar stones had their origins outwith Scotland, other items suggested that part of the collection queried notions of Scottish indigeneity, like the so-called "Molucca Beans," which washed up on the northern shores of Scotland, and which Sibbald judged to have come there from the tropical Americas "by the Northern passage, than any other

---

[63] Charles Withers has provided a list of Sibbald's respondents in *Geography, Science and National Identity,* 256-262.

[64] In the manuscript of a description of Scottish shires by Sibbald, which includes material on topography, flora and fauna, industry, agriculture and outstanding buildings, 32 instances of particular of stones, fishes, birds, crystals and antiquities are marked with an X in Sibbald's hand in the margins. Several of these have a corresponding specimen in the *Auctarium*. While this does not show a conclusive relationship between observation and specimen, this shows that Sibbald might have attempted to match up claim with material proof, NLS Adv. MS. 15.1.5.

[65] Wallace was the son of the older James Wallace (1642–1688), who, in 1684, had written a description of Orkney, which the younger Wallace re-published with additions in the natural history sections, James Wallace, *An Account of the Islands of Orkney* (London: Jacob Tonson, 1700).

[66] Sloane had published an article on the bark in the *Philosophical Transactions*, vol. XVII (1693): 922-4. On Woodward, see Chapter VII.

[67] *Auctarium*, 72, 79.

way."[68]

While the number of specimens in the *Auctarium* collection was fairly modest, Sibbald aimed to include the totality of nature and art, although his collection was largely concerned with the former. Out of the 760 or so named entries contained in the *Auctarium* catalogue, around 660 are in the first three categories of *fossilia, vegetalia* and *animalia* and only about one hundred in the category of *artificiosa*, which contained scientific instruments, pictures, coins and inscriptions as well as a handful of books.[69] The *naturalia* are unevenly distributed and of the items of natural history, about 235 are *fossilia*, which included metals, ores, precious stones and petrifactions and around 90 contain dried plants and fungi, fruits, seeds, algae, corals and plant *materia medica* such as Peruvian balm, all classed as *vegetalia*. The largest section, on animal life, was dominated by marine life, with different mollusc shells taking up 240 entries alone, as well as 60 entries on fishes, cetaceans, crustaceans and jellyfish, and only about 40 land-based animal entries, in which Sibbald included insects, parts of quadrupeds, birds, and several items derived from human remains that had some medical interest.

As limited as this material was, Sibbald saw in this collection not only the genesis of a larger teaching collection, but he also saw in this a collection which, unlike Balfour's Museum, possessed the organisational flexibility to expand. Furthermore, by supplying the *Auctarium* with the collection, Sibbald shared his vision of how to organise the material. The *Auctarium* differed in the attempts by the council to account for the specimens in Balfour's Museum in that it represented a catalogue, rather than a mere inventory. The distinction between inventory and catalogue has been emphasised by Marjorie Swann, who notes that the latter represents an authorial tool to bind together collector and collection: "unlike the quantifying enumeration of an inventory, a catalogue offers a self-conscious interpretation of the objects it presents." [70] The catalogue was also, as Paula Findlen had noted, "an early modern invention," which differed from Medieval inventories of collections, and represents

[68] *Auctarium*, 93. On the history of these, see E. Charles Nelson, *Sea Beans and Nickar Nuts: A Handbook of Exotic Seeds and Fruits Stranded on Beaches in North-Western Europe* (London: Botanical Society of the British Isles, 2000).
[69] Exact figures of specimens are difficult to determine, as some entries contain multiple specimens and a few entries are ambiguous as to whether they refer to single or multiple specimens.
[70] Swann, *Curiosities and Texts*, 9.

the "most important object produced from a collection."[71] This authorial ambition was emphasised by Sibbald's decision to have the catalogue printed, with council funds, which not only emphasises his wish to advance his naturalist credentials, but also provided a means to publicise the *Auctarium* collection, and thus his didactic and classificatory aims. The *Auctarium* was printed in small 16mo format by the college's in-house holder of printing privileges, Agnes Campbell, "the most successful woman ever to come to prominence in the Scottish book trade."[72] Whether the full print run of 300 was achieved or not, it had some limited distribution in Scotland and elsewhere, mostly due to Sibbald's own efforts.[73] Among Sibbald's recipients of the *Auctarium* which we can trace, are Thomas Molyneux (1661–1733), a prominent member of the Philosophical Society in Dublin, the physicians and English Royal Society members Hans Sloane and Martin Lister in London, and the keeper of the library at Glasgow university, Robert Wodrow.[74]

From the *Auctarium* catalogue, it becomes clear that for Sibbald, museums represented the merger of ancient observational virtues with modern practices. In it, Sibbald provided a short commentary on the use of museums and an overview of contemporary collections which were known to him. Sibbald equated the philosophies of Democritus, Aristotle or Theophrastus with those who pursued everything as teachers "by means of experience and observation," and like them, it was necessary for us to look at the things themselves.[75] Museums, for Sibbald, provided the ideal spaces to conduct an observation of nature, as

---

[71] Findlen, *Possessing Nature*, 36.

[72] On Campbell, see Alastair Mann, "Book Commerce, Litigation and the Art of Monopoly: The Case of Agnes Campbell, Royal Printer, 1676-1712," *Scottish Economic and Social History* 18, no. 2 (1998): 151.

[73] Before going offline due to a cyber attack in October 2023, the English Short Title Catalogue (ESTC) listed 26 copies of the *Auctarium* (ESTC Citation number R38917), half of them in Scotland (June 2020). By comparison, the 1681 printing of the *Musæum Regalis Societatis* (R23326) is listed in 131 archives, *English Short Title Catalogue* (online), The British Library, http://estc.bl.uk/). In her pioneering PhD thesis, Barbara Balsiger was unable to access the *Auctarium*, due to the "unbelievably slow service" of intercontinental library loans from the British Library to the U.S. Barbara Jeanne Balsiger, "The "Kunst- Und Wunderkammern": A Catalogue Raisonné of Collecting in Germany, France and England, 1565-1750" (PhD Thesis, University of Pittsburgh, 1970), 5 and 453.

[74] Edward Lhuyd to Thomas Molyneux, 7 May 1700, Trinity College Dublin 888/2, ff. 312-313 via EMLO. Robert Sibbald to Hans Sloane, 21 June 1698, Royal Society Library, EL/S2/10 via EMLO. Robert Sibbald to Martin Lister, 12 August 1698, Bodl. MS Lister 36, f. 208 via EMLO. The Wodrow copy is now at Glasgow University Library Mu7-i.41, and is inscribed by Wodrow "Ex Dono Authoris Amici plurimii colendi."

[75] "Sane Democritus, Aristoteles, Theophrastus aliique magni viri, quorum eruditio tanti aestimatur, cum ista perquierent, Philosophiam non parum excolebant, ut qui Magistrâ rerum experientiâ & observatione omnia prosequebantur. Hisce similes ut nos evadamus, res ipsas speculari necesse est," *Auctarium*, Preface, n.p. Sibbald's original meaning is slightly unclear.

these were akin to workshops of art and nature, in which the rich works of both realms were exposed to the eyes of all.[76] In this emphasis on passive observation of the actions of nature, Sibbald tapped into the idea of the *Theatrum Mundi*, which pervades works of natural philosophy from the sixteenth century that aimed to emphasise the vastness of God's work and its encyclopaedic capture by naturalists, pedagogues, geographers and others.[77] The spectating of nature and the *Theatrum Mundi* had been the aim of the *Scotia Illustrata*, and Sibbald had used Seneca to emphasise that the observation of natural particulars would open up a path to the understanding of the divine.[78] However, whereas the *Scotia Illustrata* provided mediated observation, a museum offered the opportunity for direct access to nature.[79] The *Auctarium* collection served, in Sibbald's words, as a vestibule to the *Theatrum Mundi*, in which the visitor could spectate the "majesty, variety and artifice of nature" and the "wisdom, power and goodness" of God.[80] Sibbald also employed the *Theatrum Mundi* concept in his account of Balfour's travels. There, he stated: "Indeed, the World is a Theater in which we may see not only the different productions of Nature, but also all the Arts & Mysteries of Government; and all the ways of improving Nature by Art."[81] By employing the same language for museums and travelling, Sibbald equated one with the other. Even more than his praise for geography, Sibbald's spectating of nature in museums served not only to consider the usefulness but also the moral virtues of the consideration of nature in an enclosed setting. For Sibbald, in spaces like museums and private cabinets, the real study of nature could be done by contemplative study. He advised the young William of Grubet that whenever he found any notable items of natural history to dedicate himself to "due observations and contemplation and reflection upon them."[82] Contemplation should be as much a part of natural history as direct observation, and this did not require travel or

---

[76] "Quod optime concessum est in Musaeis istis, quae veluti ipsius Naturae, Artisque Officinae sunt, in quibus utriusque opes stupendae omnium oculis exponuntur," *Auctarium*, Preface, n.p.
[77] Ann Blair, *The Theater of Nature: Jean Bodin and Renaissance Science* (Princeton, N.J.: Princeton University Press, 1997), 153-179.
[78] Sibbald, *Scotia Illustrata*, Preface, n.p. See Chapter III.
[79] On "virtual witnessing," the foundational text is Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump Hobbes, Boyle, and the Experimental Life* (1985; Princeton: Princeton University Press, 2011).
[80] "Ingrede igitur Lector benevole hoc vestibulum in quo cum ipsius naturae Majestatem varietatem & Artificium, tum summi ipsius Artificis Sapientiam, Potentiam & Bonitatem cernere poteris, quem ut rite cognoscemus, puraque mente colamus & toto animo diligamus, in hoc Mundi Theatrum producti sumus," *Auctarium*, Preface, n.p.
[81] Balfour, *Letters*, ii.
[82] Robert Sibbald to William Bennet, 12 July 1697, NRS GD 205/34/4, f1.

the presence of the naturalist in the field.[83] For Sibbald, this contemplative act in an enclosed space was not only a better way to understand nature, but it was also more pleasurable. Preparing the catalogue of the museum, Sibbald later confessed that he did so at least partly "to delight my self at home with the contemplation of the wonderfull wonder of God, while ther is litle[?] pleasure in looking abroad in the world."[84] In the enclosed space of his *studio*, Sibbald had access to reference works and could reflect on nature by considering each of the specimens separately away from worldly distractions.[85]

For the untrained, which would include much of Sibbald's intended audience at the Edinburgh town college, this spectating required a guide. The catalogue, written by the skilled and trained naturalist and always accessible, unlike the naturalist, served not only as an enumeration and description of the collection but, as the title page proclaimed as a "*Manuductio,"* a guide or "leading by the hand" through natural history.[86] Sibbald emphasised this in a letter to Martin Lister in 1698, in which he stated that the purpose of his collection was to provide students with an introduction to natural history, but he did not mention that he had to be present.[87] Sibbald also conceived his collection to serve as a *manuductio* to the larger Balfourian Museum.[88] For Sibbald, the understanding of Balfour's eclectic array of objects required a fundamental understanding of natural history which Sibbald's *Auctarium*, collection and catalogue, could provide. While the catalogue was partly aimed at publicising the museum to other naturalists, it was also tightly anchored to the collections it described. This was emphasised by the *Auctarium'*s paradoxical last entry, which listed itself as the final object, even though it could not have existed at the time it was printed.[89]

---

[83] For the development of the rhetoric and ontology of "field-based" science, see David N. Livingstone, *Putting Science in Its Place: Geographies of Scientific Knowledge* (Chicago: University of Chicago Press, 2003), 42-3.
[84] EUL MS La III 535, f. 4.
[85] The intimacy and introspection of the studio, usually one of the most private parts of the house was emphasised in the layout of early modern museum collections, Findlen, *Possessing Nature*, 110.
[86] "Ennumeratio & Descriptio rerum Rariorum tam Naturalem quam Artificialium; tam Domesticarum quam Exoticarum… Quae quasi Manuductio brevis est, ad Historiam Naturalem."
[87] Robert Sibbald to Martin Lister, 12 Aug 1698, Bodl. MS Lister 36, ff. 208-209 via EMLO. The course offered by Sibbald in 1706 to teach natural history noted that he was doing this in a private capacity, and did not mention the college or its collections, Cunningham, "Sir Robert Sibbald and Medical Education," 135.
[88] "In Scrinio Sibbaldiano contenta enarranda censuimus, quod illud musaei balfouriani quasi compendium quoddam sit, ut brevi hac instructione veluti per vestibulum manuducantur ad ingentis illius Thesauri notitiam," *Auctarium*, Preface, n.p.
[89] *Auctarium*, 216.

Sibbald saw the catalogue as the fundamental part of a museum, not least since that was often the only part he knew. His list of collections listed the personal collections of Ulysse Aldrovandi, Francesco Calzolari, Ludovico Moscardo, Manfredo Settala, Ferdinando Cospi, and he noted that Italians had developed the study of the works of nature in museums.[90] While Sibbald does not state it, these collections, as well as various other continental collections, were known through him only through their catalogues, and he emphasised the authorial role of catalogue writers like Benedetto Ceruti, Andrea Chiocco, Paolo Maria Terzago, Lorenzo Legati and others.[91] Unlike Balfour, Sibbald had not travelled to Italy, and at least after his return from the continent, the only collections which he had seen personally were, apart from Balfour's and his own, the London collections of William Courten (1642–1702), and the collections of the London College of Physicians and the Royal Society, which he likely saw during his enforced stay in the city in 1685/6. While Sibbald praised the collections of individuals, for him, an institutional collection, the Repository of the Royal Society of London was the "moon amongst the smaller stars."[92] However, even though he had seen the repository, he again emphasised not the collection, but rather Nehemiah Grew's catalogue (1681), which he stated yielded to others in *artificialia*, but was the best description of natural things, both in number and accuracy.[93]

Sibbald's *Auctarium*, however, was not an emulation of Grew's work and Sibbald's hand-holding was rather gentle. In his catalogue, Sibbald eschewed the lengthy description and interpretation that could be found in Grew's catalogue or that of the earlier Italian catalogues. Sibbald's *Auctarium* entries were kept mostly brief, with the Latin names and descriptions of the specimens usually supplemented by English (or Scots) names, and occasionally short English provenance remarks. The aim was, Sibbald reasoned, to provide descriptions that were "not that pure and copious, but intelligible to any reader."[94] Of course, brevity was perhaps also expected from a work for which Sibbald did not have

---

[90] "Et sane huius studii excolendi Authores Itali sunt," *Auctarium*, Preface, n.p.
[91] *Auctarium*, Preface, n.p. On Italian museum catalogues, see Findlen, *Possessing Nature*, 36-44.
[92] "Sed inter Musaea, ut inter stellas Luna minores, eminet maxime Musaeum Regiae Societatis," *Auctarium*, Preface, n.p.
[93] "insignes etiam rariorum quae ibi habentur descriptiones & Elegantissimas Figuras adjecit Dominus Grew, Historiae Naturalis peritissimus; & quamvis quibusdam ex enarratis Musaeis in Artefactis & Antiquis monumentis cedat, rerum tamen naturalium rariorum numero & descriptionum ἀκρίβεια, omnibus (quae vidi) praeferendum videtur," *Auctarium*, Preface, n.p.
[94] "non ita puro & copioso, claro tamen & cuivis Lectori intelligibili cuncta," *Auctarium*, Preface, n.p.

received any financial compensation. However, Sibbald did supply references to descriptions and figures from other authors, both to ancient authorities like Pliny and Boethius, but more often to other museum catalogues or works of natural history.[95] Particularly for many of the Scottish specimens, Sibbald provided references to his own works: the *Scotia Illustrata* (1684), his treatise on whales (*Phalainologia nova*, 1692), and his unpublished history of marine life, which he called "De Aquatilibus Scotiae."[96] These emphasised his own expertise in Scottish natural history but also served to strengthen the epistemological basis of his written works, which linked claims in the text to specimens in the collection. However, the brevity of many of its entries meant that, as a work of explanative natural history, the *Auctarium* catalogue was of little use, since apart from a few exceptions, it did not provide a thorough description of the items. Apart from the Latin and vernacular names of the specimens, most items included just a short description, which included colour and form, and occasionally a sensual quality such as a bole which "feels as smooth as Castile Soap," or a local sample of soil "of a bitter taste."[97] However, while this seemingly places the *Auctarium* in a genre closer to an inventory than an early modern catalogue, the work might also be conceived as a collection of labels, which had the purpose of replacing the curator of the collection by providing the names, descriptions, and origins of the specimen.[98]

While neither the number of specimens nor their description was very extensive, one of Sibbald's main concern seems to have been with the classification system in which he embedded the objects. In his earlier *Scotia Illustrata*, Sibbald had not employed a uniform classification system. There, he had first listed the plants in alphabetical order, before giving an account of the *animalia* that descended from human to insect, and finally dealing with metals and minerals. However, manuscript evidence does suggest that classification and

---

[95] Among the catalogues are those of Ulysse Aldrovandi, Nehemiah Grew, Francesco Calceolari, Ole Worms, and among the naturalists cited are Martin Lister, Francis Willoughby, Guillaume Rondelet, John Ray, Caspar and Johann Bauhin, and Joseph Pitton de Tournefort.

[96] Sibbald had planned this to be the basis of a second volume of his *Scotia Illustrata* and showed the manuscript to Edward Lhuyd on his 1699 visit to Scotland, Lhuyd to Martin Lister, 15 Dec 1699, Bodleian MS Lister 36 ff. 242-243, via EMLO. This is also mentioned in Sibbald, *Miscellanea eruditæ antiquitatis*, 87.

[97] *Auctarium*, 22-3. On the sensual experience of a museum visit, see Constance Classen, "Museum Manners: The Sensory Life of the Early Museum," *Journal of Social History* 40, no. 4 (2007): 895–914.

[98] The nineteenth-century Smithsonian director George Brown Goode described an educational museum "as a collection of instructive labels, each illustrated by a well-selected specimen," quoted in Starn, "Historian's Brief Guide to New Museum Studies," 81. Goode stated that labels should take the place of the curator of a collection in George Browne Goode, *The Principles of Museum Administration* (York: Coultas & Volans, 1895), 56.

ordering played an important part in Sibbald's thought from the 1690s. One of Sibbald's extant manuscripts lists categories for two catalogues that he wrote, one for the Balfourian Museum, and one for his own collection.[99] The Balfourian catalogue shows little evidence of an overall scheme for the collection and presents twenty different categories of items, which start with "human rarities" and end with "vestiments & ornaments," and in between contain different categories of gems, metals, "serpents & what belongs to ym," insects or things "relating to Chymistry item of instrumeants relating to Naturall philosophie."[100] While this list indicates that Sibbald wrote some form of a catalogue for the town council's acquisition, the lack of overall order indicates that he might have followed an older classification system, perhaps Balfour's own. In his speech for the opening of the town college museum, Sibbald stated that he had started to write a catalogue of Balfour's collection which commenced with the shells of testaceous animals, "for that of the simpler and lesser compounded Animals they are mo[re] remarkable for ye variety [and] curious fabrik & use … and I think in the describing of [the] kingdoms of Nature it is no bad methode to begin at the more simple and goe one to those more compounded."[101] As this attempt of Sibbald's to describe Balfour's collection does not survive it cannot be established whether Sibbald got very far, although the various attempts by the town council to have an inventory drawn up suggest that no complete catalogue emerged from Sibbald's efforts.

Sibbald's second list of categories in the manuscript is markedly different from the first and seems to relate to either the *Auctarium* collection or the part of his Museum that he retained.[102] Divided into ten sections, each subdivided into eleven chapters, the categorisation scheme moves from minerals, metals and marine productions, to plants, quadrupeds (including human rarities), aquatic animals, serpents, birds, insects, fishes, molluscs and culminates in *artificialia*, which reflected Sibbald's intent to move from the simple to the compounded, although the order of the *animalia* is top-to-bottom as it had been in the *Scotia Illustrata*.[103] The classification system which Sibbald employed in the

[99] NLS Adv MS 33.3.16, ff. 47-8.
[100] The title is "Museum Balfourianii in 2.Parts [folii?] or a description of ye rarities now belonging to the Colledge of Edr & preserved yr," NLS Adv MS 33.3.16. f. 47.
[101] EUL MS La III 535, f. 3.
[102] The title is "Musaeum Sibbaldianum sive index et description rariorii natura et artis operii in eo conservatorii in qua eadem per Class[es] suas Digesta et propriis nominibus tum Latina Lingua tum Vernacula Signata Recensentur et explicantur," NLS Adv MS 33.3.16. ff. 47-8
[103] Sibbald's numbering is inconsistent, and he labels sections 3 and 5 twice.

Auctarium seems to be a refinement of the scheme of the manuscript catalogue and introduced five taxonomic divisions: book (*liber*, e.g. *De Fossilibus Rarioribus*), part (*pars,* unused apart from sanguineous animals), section (*sectio,* e.g. *De Lapidibus*), chapter (*caput*, e.g. *De Lapidibus non pretiosis, magnis, durioribus*) and article (*articulus*, e.g. *De Saxis et Sicilibus*), for an item such as red marble.[104] He also reversed the order of the *animalia* that now commenced with the insects and finished with the "human rarities," which are listed just before the *artificialia*.[105] While not all divisions are uniformly used, Sibbald's system had a remarkable taxonomic depth. Schemes for the ordering of museum objects had a Renaissance tradition reaching back to at least the mid-sixteenth century, but despite the modest size of the collection it described, Sibbald's five-layered categorisation is among the most nested.[106]

The contrast between the two catalogue schemes of Balfour's and Sibbald's collection shows both the didactic aspirations underlying the *Auctarium*, as well as the aspiration that the Sibbaldian Museum, unlike Balfour's collection, was to be dynamic and provided with a scheme that possessed depth and flexibility for new accessions. Since the understanding of complexity required the understanding of the simple, Sibbald enforced a strict order of the perceived hierarchy of nature unlike, for instance, Grew's catalogue for the Repository of the Royal Society, which he had claimed as a model.[107] Unfortunately, it is not possible to reconstruct the physical layout of the collection, since neither specimens nor possible labels survive, so it is hard to establish whether Sibbald's categories or the hierarchy was reinforced by the presentation of the collection.[108]

While the catalogue aimed to replace the naturalist as a personal guide through the

---

[104] *Auctarium*, 38.

[105] While, overall, items are categorised according to their place in this scheme, there remained an ambiguity to some items, and Sibbald placed, for instance the "snake stone," which purportedly cured snake bites, among the *animalia*, together with the snakes, rather than among the *fossilia*, where he had placed the bezoars. *Auctarium*, 178.

[106] One of the earliest attempts to establish categories of collecting was made by the Flemish physician Samuel Quiccheberg, *The First Treatise on Museums: Samuel Quiccheberg's Inscriptiones, 1565*, trans. Mark A. Meadow and Bruce Robertson (Los Angeles: Getty Research Institute, 2013).

[107] Grew, *Musæum Regalis Societatis* (London, 1681).

[108] In many early modern collection, like those depicted on the famous frontispiece of the Musaeum Wormianum, items are ordered in drawers with generic labels such as "animalium partes" and "varia," Ole Worm, *Museum Wormianum, Seu, Historia Rerum Rariorum* (Leyden: Elsevier, 1655). Other collections, like those of Robert Wodrow, had numbered drawers which were recorded in their catalogues, see Strathclyde MS Anderson MS 10 (OA 5/1/1) and Chapter VII of this thesis.

collection, Sibbald did not seem to relinquish curatorial control easily, and despite providing a textual *manuductio*, seems to have restricted access to the collection during his absence. The collection was kept, as a council visit in 1703 noted, in a separate "press," or cupboard, in the upper hall of the college, together with the three presses which contained the bulk of Balfour's collection. [109] However, the councillors noted that they did not possess the key to this press, and merely remarked that the *Auctarium* collection had "Doctor Sibbalds name upon it haveing putt some fossils vegetables and animals skeins wherof he keepes the key."[110] It was Sibbald and not the council or college officials who retained control over Sibbald's donation. Both physical and authorial control of the collection are evident in Sibbald's other donation of a collection, that he offered to give to the Royal College of Physicians in March 1706. The offer of "a large parcel of Curiosities" was accompanied by Sibbald's condition that "he have the power of keeping and ordering them," and that they were to be kept in a convenient press.[111]

Despite this emphasis on control, Sibbald had encouraged others in both his speech and in the preface to the *Auctarium*, to add to the town college museum, clearly envisioning a growing institution.[112] While, as the following chapter shows, the institution that was formed from Balfour's collection and Sibbald's donation, was a dynamic entity which became bound into a network of specimen exchange, a detailed history of the collections after 1705 is so far lacking. When the Regius Professor of Natural History, John Walker (1731–1803), drew up two catalogues for the university museum in 1780, he recorded among the items "six square Boxes with Divisions, which seem formerly to have belonged to Sir Robert Sibbald. They contain some small specimens of Fossils, & of foreign Seeds & Fruits, but are more than half empty."[113] While the size of the town college museum had grown to twelve presses, with many other items lying loosely in the space of the hall or contained in boxes, most of these derived from England, Gibraltar, the Caribbean, North and

[109] *Burgh Record Extracts* 1701-1718, 19 May 1703, 48.
[110] *Ibid*.
[111] RCPE Archives, DEP/POR/3/8/3.
[112] EUL MS La III 535, f. 4. *Auctarium*, Preface, n.p.
[113] "'A Catalogue of the present Contents of the Museum of the University of Edin[r] John Walker, 22 March 1780," Edinburgh City Archives C0016R, item 62, f. 4.

South America, and the Pacific, and the boxes were the only remnant of the collection which Walker was able to attribute to Sibbald's name.[114] Walker claimed to have been inspired as a young man by the sight of the college museum "with an attachment to Natural History," he aimed to reform it from the ground up, and as keeper from 1779 until 1803 threw out most of the remains of the older collection, including "many fragments of Balfours Museum of no use."[115]

Neither Sibbald's expansive classificatory scheme nor his control of access could keep the "forces of dissipation" at bay that worked against his embryonic teaching collection.[116] Even though Sibbald recognised that a purposely created didactic collection could address some of the problems of cataloguing and curatorship which came with the institutionalisation of a private collection like Balfour's, they did not entirely disappear. As the following chapter will show, even museums that were attached to institutions were still embedded in networks of exchange, even though these networks could be as fragile as many of the specimens they contained.

[114] Walker's catalogue shows that by the late eighteenth century, the museum had become deeply embedded in exploitative colonial practices. The time between Sibbald and Walker has yet to be explored fully.

[115] On Walker's keepership, see Withers, "Both Useful and Ornamental," 65-77. Walker, *Essays on Natural History and Rural Economy*, 365. Edinburgh City Archives C0016R, f. 3. Linda Andersson Burnett, "Collecting Humanity in the Age of Enlightenment: The Hudson's Bay Company and Edinburgh University's Natural History Museum," *Global Intellectual History* 8, no. 4 (2023): 387-408.

[116] Jardine, Kowal, and Bangham, "How Collections End," 3.

Chapter VII – A Scottish Collecting Network: Robert Wodrow, James Paterson and Fossil Collecting

Between 1699 and c.1702 there crystallised in Scotland an epistolary network of exchange which was centred around the Glasgow librarian and later church historian Robert Wodrow (1679–1734), and whose participants concerned themselves primarily with one of the most-debated objects of *naturalia* of the time: figured stones, or fossils in the narrow modern sense. Although the fossil network was relatively short-lived, the survival of much of Wodrow's extensive correspondence allows us to reconstruct a dynamic exchange of correspondence and specimens, and to present a case study that shows how, in early modern Scotland, intellectual connections were formed, what kind of patronage influenced these, which rules of conduct were established and what type of language was adopted by participants.[1]

Scotland has figured very little in the rich historiography of early modern fossil collecting. However, an examination of Wodrow's network shows that Scots were not only engaged in the procurement, sorting and exchange of figured stones but that they were keenly interested in the contemporary debates surrounding their origins. Contacts with naturalists like Edward Lhuyd (1660–1709) gave them a sense of participating in these debates along with models of conduct and a language that described their activities. Lhuyd, an active, albeit reluctant theorist, helped catalyse the formation of the network, but most of the correspondence and the fossils that were traded remained in Scotland and the north of England. This relative self-containedness means that, while Wodrow's collecting network was regional, it had its own centres of correspondence, and was not merely feeding the English naturalist networks from the periphery.

Wodrow's main contact in Edinburgh was James Paterson, the keeper of the museum at the Edinburgh town college, who became a valued friend to the Glasgow librarian. The keepership made Paterson not only an important correspondent but also allowed him to function as an intermediary between Wodrow and other naturalists in Scotland and England. While evidence suggests that items from the Edinburgh museum collection were

[1] On naturalist networks in early modern Britain, see particularly Yale, *Sociable Knowledge*, 55-88.

rarely, if ever, traded away, Paterson tried to make himself and the museum institution useful, even though initial hopes of integrating the museum more actively into specimen exchange were frustrated by institutional strictures.

The previous two chapters have considered the self-fashioning of collecting identities by collectors, and the institutionalisation of private collections, as well as the values that collections were deemed to support. This chapter will examine correspondence and specimens on the move, and deal with the establishment and dissolution of a network, as well as with the practices of collecting and exchange within that network. Perhaps surprisingly, Robert Sibbald, the most eminent Scottish naturalist, only rarely emerges in the foreground of Wodrow's network and will feature much less prominently than in the previous parts of this thesis. While the previous chapters have dealt with those for whom collecting was an extension of a courtly, scholarly or professional identity, the main protagonists of this chapter were men with little formal training in natural history, and with limited financial means. This means that while they saw the collecting and exchange of fossils as a way to engage in a wider intellectual debate, they also saw the collecting of stones – or lithoscoping as they termed it – as a pleasurable activity, used to strengthen social bonds. These bonds were often used for purposes other than the discussion of fossils, although a shared interest in, what Wodrow termed "our subterranean inhabitants," stimulated correspondence on other matters and was often discussed alongside them.[2] Other engagements could, however, disrupt full participation in a discourse on natural history, and when these engagements took precedence, they could threaten to disrupt, or dissolve connections, showing the fragility of the network.

This chapter will first provide a brief biographical background to the Edinburgh town college museum keeper James Paterson and the Glasgow university librarian Robert Wodrow. Even though keepers like Paterson were at the heart of a collection, and were crucial in determining the success of an institutionalised collection, they are often little known unless they also wrote catalogues. Wodrow's participation in the network was via his personal collection, but his natural historical interests have been overshadowed by his

---

[2] The letters Wodrow sent which concern natural history are printed in Robert Wodrow, *Early Letters of Robert Wodrow, 1698-1709*, ed. L. W. Sharp (Edinburgh: Edinburgh University Press, 1937). The correspondence that Wodrow received during those years is in NLS *Wod.Let.Quarto*, vols I and II. Wodrow mentioned "our subterranean inhabitants" in a letter to William Nicolson, 20 October 1701, Sharp, *Early Letters*, 176.

activities in church history and antiquarianism. This chapter will then move to consider how the visit by Edward Lhuyd in the winter of 1699/1700 catalysed the formation of an epistolary friendship between Paterson and Wodrow, showing that this visit was more consequential for natural history than has hitherto been assumed. The intricacies of Wodrow's network, which included forms of address, terminology, transport and correspondence on identification and speculation about the origins of fossils, which often have to be extracted from letters concerned with other matters, will form the third section of this chapter. Finally, this chapter will address the dissolution of Wodrow's network after 1703.

7.1 Keepers: James Paterson and Robert Wodrow

The two-year appointment of James Paterson as keeper of the town college collections by a council act of May 1699 indicated that the council seemed to take more seriously the challenge of protecting its investment and establishing the museum as a teaching collection, even though it was not prepared to lavish considerable funds on either keeper or museum.[3] Paterson's duties, as specified in the act, were to take care of the rarities, to create an inventory and to "understand them," and the council resolved to pay him 100 Pound Scots annually for this task.[4] This was the same sum that had been allocated three years previously to the older and somewhat more experienced Robert Edward for cataloguing the collection, but Paterson's role seems to have been envisioned much more broadly.[5] The act had noted the dire state of the museum rarities and wanted the keeper "not only to preserve ym, But to encrease them without any Charges," and councillors stated that they had acted swiftly in appointing Paterson, "because these rarities are of great value for the better understanding [of] naturall philosophy and would to be reckoned upon where that Learning is esteemed."[6] Paterson's role as curator was, therefore, not only to oversee the collection but also to augment and publicise it, all at minimal cost to the council. While

---

[3] City of Edinburgh Burgh Records, 1697-1701, 5 May 1699, f. 204. This is not the same James Paterson, mathematician, who had published almanachs in the 1680s, but who had died by January 1696.
[4] City of Edinburgh Burgh Records, 1697-1701, 5 May 1699, f. 204.
[5] See the previous chapter.
[6] City of Edinburgh Burgh Records, 1697-1701, 5 May 1699, f. 204

salaries in early modern Scotland are difficult to compare, Paterson's annual salary of 100 pound Scots (ca. £8 Sterling) was rather modest and less than half of the annual £20 Sterling that the council had paid James Sutherland for his position as keeper, or Intendant of the Physic garden since 1676.[7] The figure of £20 Sterling was also deemed the adequate salary suggested by Edward Lhuyd for the interim caretaker keeper of the Ashmolean Museum in Oxford, Ned Tomas, in 1696.[8]

Paterson came from a clerical family which likely had only modest financial means, but which did have important connections. He was the son of Walter Paterson who had been a minister at Bolton in East Lothian from 1665 until 1681, when he was ousted for refusing to take the Test Act in support of Charles II, and possibly died around ten years later.[9] While the year of James Paterson's birth is not known, he was probably born around 1680.[10] James' mother was Elizabeth Stratton, who married Walter Paterson in 1677, and who later lived at Taylor's Land in Edinburgh's Cowgate along with her son.[11] James Paterson's uncle was another Episcopalian minister, Ninian Paterson, who was a poet of Latin epigrams, including an ode to his brother Walter in his *Epigrammatum libri octo* (1678), and who was deposed from his ministerial office at Liberton in a defamation case in 1682.[12] Walter Paterson had been one of the six ministers termed the "bishop's evangelists," who were employed in 1670 by the bishop of Glasgow and Sibbald's friend, Robert Leighton, to counter more radical Presbyterian preachers. Although one hostile commentator of this

---

[7] Sutherland's annual salary was also augmented by other patronage positions to almost £100 Sterling annually by the early 1700s. Emerson, *Academic Patronage in the Scottish Enlightenment*, 274.

[8] Robert T. Gunther, *Early Science in Oxford / Vol.14, Life and Letters of Edward Lhwyd* (Oxford, 1945), 301.

[9] *Burgh Record Extracts* 1701-1718, 11 September 1702, 26. John Sinclair, *The Statistical Account of Scotland. Drawn up from the Communications of the Ministers of the Different Parishes*, vol. 18 (Edinburgh: William Creech, 1796), 272. Parish records for Edinburgh show two Walter Patersons died after 1680 (8 May 1689 and 7 July 1693) and before 1702, the year Elizabeth Stratton is shown as widowed in council records. This information is taken from National Records of Scotland, "ScotlandsPeople," accessed January 6, 2022, https://www.scotlandspeople.gov.uk/.

[10] Emerson, "Sir Robert Sibbald, Kt," 56, gives c.1677 as the year of Paterson's birth, but does not provide an explanation. Only one James Paterson was born to a Walter Paterson before 1694, on 8 August 1680 in the parish of Fordyce, near Aberdeen.

[11] The marriage is recorded in the Old Parish Registers 742/10 254 in Gordon parish, Berwickshire, from "ScotlandsPeople," accessed January 6, 2022. Robert Wodrow to James Paterson, 21 December 1699, Sharp, *Early Letters*, 34.

[12] Ninian Paterson, *Epigrammatum libri octo: Cum aliquot Psalmorum paraphrasi poetica* (Edinburgh: Thomas Brown & James Glen, 1678), 61. On Ninian Paterson, see Murray C. T. Simpson, *Scholarly Book Collecting in Restoration Scotland: The Library of the Revd James Nairn (1629–1678)* (Leiden: Brill, 2020), 74, and Steven J. Reid, "A Latin Renaissance in Reformation Scotland? Print Trends in Scottish Latin Literature, c. 1480-1700," *The Scottish Historical Review* 95, no. 240 (2016), 20. Alasdair Raffe, *The Culture of Controversy: Religious Arguments in Scotland, 1660-1714* (Woodbridge: Boydell Press, 2012), 124, 159.

episode said of Walter Paterson that he was "a man so obscure, I never heard of him," Sibbald seems to have been a friend of Walter Paterson and consulted him for his antiquarian work.[13] Another of Leighton's preachers was James Nairn (1629–1678), who preceded Walter Paterson's appointment to the Bolton parish and had also been librarian of the Edinburgh town college library in 1652-3, before the establishment of the museum there.[14] A third "bishop's evangelist," Laurence Charteris (c.1625–1700), had been the professor of divinity at Edinburgh town college until 1675 and had remained in contact with Paterson's family during his retirement at Dirleton and Edinburgh.[15] James Paterson graduated from Edinburgh town college in 1697, in the same class as Charteris' nephew Charles, and both young men retained a friendship.[16] It was this environment of clerical and academic patronage, with Sibbald perhaps playing the decisive role, that probably secured Paterson's appointment and that Paterson aimed to exploit further in his post.[17]

There is only scant evidence about Paterson's day-to-day activities as keeper of the museum. However, his embedding in the institution of the museum meant that, even with a modest salary, he became a node of correspondence for Wodrow and others in matters of natural history and beyond. Paterson also seems to have been in close contact with Sibbald, who engaged him as an intermediary between him and other Scottish and English correspondents.[18] Sibbald often used Paterson as a factotum for tasks such as transcribing documents or circulating his book project on the late antique poet Sedulius.[19] Sibbald also seems to have planned to send Paterson with James Sutherland to Glasgow and the west of Scotland in the summer of 1700, perhaps on a natural history excursion, but that journey

---

[13] T. E. S. Clarke and Helen Charlotte Foxcroft, *A Life of Gilbert Burnet, Bishop of Salisbury* (Cambridge, 1907), 93. Robert Sibbald to Robert Wodrow, 24 April 1702, *Wod.Let.Quarto*, vol. II, f. 29.
[14] Murray C. T. Simpson, "Nairn, James (1629–1678), Church of Scotland minister and book collector," *Oxford Dictionary of National Biography*[Online], 2006.
[15] On Charteris, see Tristram Clarke, "Charteris, Laurence (c. 1625–1700), Church of Scotland minister," *Oxford Dictionary of National Biography* [Online], 2004; James Paterson to Robert Wodrow, 14 May 1701, *Wod.Let.Quarto,* vol. I, ff. 180-1.
[16] Robert Wodrow to James Paterson, 28 Apr 1701, Sharp, *Early Letters*, 162-164.
[17] On the conscious shaping of scientific patronage, see Mario Biagioli, *Galileo, Courtier: The Practice of Science in the Culture of Absolutism* (Chicago: University of Chicago Press, 1993). Emerson, *Academic Patronage in the Scottish Enlightenment*, is mostly concerned with formal academic appointments.
[18] On the role of the go-between in the early modern Europe, see Anne Goldgar, *Impolite Learning: Conduct and Community in the Republic of Letters, 1680-1750* (New Haven: Yale University Press, 1995), 21-53.
[19] James Paterson to Robert Wodrow, 4 April 1701, *Wod.Let.Quarto,* vol. I, f. 160. James Paterson to Robert Wodrow, 19 July 1701, *Wod.Let.Quarto,* vol. I, f. 185. On Sibbald's Sedulius project, see Williams, *First Scottish Enlightenment*, 254-6.

did not materialise.[20] While these patronage commitments elevated Paterson's status, they also left him less time to concern himself with museum matters and natural history, and this deficiency became a source of frequent complaints from Paterson.[21]

Robert Wodrow (1679–1734) had started to assemble a collection of *naturalia* while being employed as keeper of the library of the University of Glasgow but, unlike Paterson, his engagement with natural history was not institutionally bound. Wodrow's natural history collecting is usually only mentioned in passing in the scholarly literature and is often described as an outcrop of a youthful eclecticism.[22] Part of the reason for this is Wodrow's conscious break with an outward engagement with natural historical matters after 1703.[23] Historians have focused on Wodrow's antiquarianism, as well as his *History of the Sufferings of the Church of Scotland* (1721–1722), and his posthumously published *Analecta*, or collection of instances of "special providences" – i.e. acts of spontaneous divine intervention distinguished from general providence.[24]

Like Paterson, Wodrow did not have a medical background, which meant that he lacked the medicaltraining in natural history that supported collectors like Andrew Balfour, Robert Sibbald, Martin Lister or Hans Sloane. However, his father, James Wodrow (1637–1707), was a Presbyterian preacher who had briefly considered a career in medicine after the Covenanters' defeat at Bothwell Bridge in 1679.[25] According to Robert, these notions were "happily diverted by the liberty and glorious Revolution, and he was set to higher and better work," and James was appointed professor of divinity at Glasgow in 1692.[26] Despite this

[20] James Paterson to Robert Wodrow, 24 July 1700, *Wod.Let.Quarto,* vol. I, ff. 124-5.
[21] See section 7.4 below.
[22] A. M. Starkey, "Robert Wodrow and The History of the Sufferings of the Church of Scotland," *Church History* 43, no. 4 (1974), 491-493. "It would be an exaggeration to pretend that a good scientist was lost when Wodrow gave up his studies in Natural History," Sharp*, Early Letters*, xxx.
[23] Robert Wodrow to Lachland Campbell, 4 February 1706, Sharp, *Early Letters*, 285.
[24] Williams, *The First Scottish Enlightenment*, 244, 255, 271. Martha McGill and Alasdair Raffe, "The Uses of Providence in Early Modern Scotland," in *The Supernatural in Early Modern Scotland*, ed. Julian Goodare and Martha McGill (Manchester: Manchester University Press, 2020), 169. Robert Wodrow, *Analecta: Or Materials for a History of Remarkable Providences Mostly Relating to Scotch Ministers and Christians* (Glasgow: Maitland Club, 1842), Robert Wodrow, *The History of the Sufferings of the Church of Scotland from the Restoration to the Revolution, with an Original Memoir of the Author, Extracts from His Correspondence, and Preliminary Dissertation* (Glasgow and Edinburgh: Blackie, Fullarton & Co., 1828).
[25] Robert Wodrow, *The Life of James Wodrow* (Edinburgh: William Blackwood and T. Cadell, 1828), 67. Another of James Wodrow's sons, John (b.1695) became a doctor of medicine in Glasgow.
[26] Wodrow, *The Life of James Wodrow*, 67.

appointment, James seems to have retained a keen interest in natural history and Robert described his father as a "pretty exact botanist."[27] James took his son out for walks and made him "pull different herbs in the fields and from the corns," asking him to state their names and uses.[28] James Wodrow cultivated a language of didactic observation, which consigned things to memory, as he wrote in his diary: "the learning of languages without the knowledge of things, is of little use, and only a knowledge of words and sounds, not of things. Ocular inspection is like geography illuminating history, and figures in botany. A child (yes, a man) will get three Latin words sooner by heart, if he have seen and known the things signified by them, than one work, otherwise."[29]

Robert Wodrow studied at the University of Glasgow from 1691, and took his father's Divinity course from 1695, graduating two years later.[30] He became assistant librarian of the university library by 1699 and succeeded John Simpson in the post of librarian in January 1700.[31] As library keeper, Wodrow established a network of correspondence with people placed in the centres of the regional and international book trade, such as Edinburgh, London and Leiden.[32] As at Edinburgh, the Glasgow library functioned as a repository of donated items, including telescopes, pictures, maps and globes, as well as scientific instruments like compasses, although natural history specimens did not seem to figure prominently.[33] During his keepership, Wodrow had started a collection of natural history items which remained his private collection. However, in his post, Wodrow also made use of the institutional surroundings and infrastructure, and his letters show a significant overlap between his duties as librarian and his private collecting interests. Wodrow relinquished his post at the library in 1703 to become minister at Eastwood in Renfrewshire, close to the

[27] *Ibid.*
[28] *Ibid*.
[29] Cited in Wodrow, *The Life of James Wodrow*, 108.
[30] Louise A Yeoman, "Wodrow, Robert (1679–1734), ecclesiastical historian," *Oxford Dictionary of National Biography* [Online], 2004.
[31] On the importance of Glasgow as a site of practical knowledge, see Roger L. Emerson and Paul Wood, "Science and Enlightenment in Glasgow, 1690-1802," in *Science and Medicine in the Scottish Enlightenment*, ed. Charles W. J. Withers and Paul Wood, (East Linton: Tuckwell Press, 2002), 79-142.
[32] On Wodrow's engagement with the book trade, see Alastair J. Mann, "A Spirit of Literature – Melville, Baillie, Wodrow, and a Cast of Thousands: The Clergy in Scotland's Long Renaissance," *Renaissance Studies* 18, no. 1 (2004): 90-108. On Wodrow's prolific epistolary correspondence on religious and political matters, see Alasdair Raffe, "Wodrow's News: Correspondence and Politics in Early 18th-Century Scotland," *Parliamentary History* 41, no. 1 (2022): 135–49. On the importance of Wodrow and others in augmenting university libraries, see Ahnert and McGill, "Scotland and the European Republic of Letters,"75-80.
[33] John Durkan, "The Early History of Glasgow University Library: 1475-1710," *The Bibliotheck* 8 (1977): 125.

estate of his family friend and patron Sir John Maxwell at Pollock. It seems that Wodrow had originally intended to leave his collection to the university, but he took it with him to Eastwood, and instead donating to the university library several volumes of cosmography, natural history, as well as a globe.[34]

It is from a catalogue of his collection at Eastwood, as well as from his correspondence that we can reconstruct some of Wodrow's practical engagement with natural history, as well as the principal participants within the network that sustained this engagement. Part of the reason for assembling a collection may have been similar to Sibbald's, and contemplation of Creation was, for the son of a theologian a moral duty, as well as a path to the divine. Writing to Edward Lhuyd in 1702, Wodrow said: "I take great delight in considering the antiquitys and naturall history of my native country, as far as my station and other studies will permit, qhuich I think contean a great deal of deuty in them, as that qhuerby observers have opportunityes of contemplating the providence, wisdome and pouer of our almighty creatour and preserver."[35] However, unlike Sibbald, Wodrow's collecting was thematically much more narrow and did not aim to represent all aspects of art and nature. The Eastwood catalogue was not an interpretation of nature and did not try to establish a taxonomic relationship, but it was more of an inventory list, in which objects are grouped in 155 "shottles," or drawers, while some are hanging in a room next to these.[36] This was the catalogue of a working collection, in which the main purpose was to quickly identify items in a set of drawers, together with brief notes on geographic provenance, occasionally donorship and, rarely, epistemic value. While Wodrow did show visitors occasionally his collection, his catalogue was also not that of a cosmopolitan traveller, like Andrew Balfour. Roger Emerson has seen in Wodrow's collection, particularly in the presence of items from various European locations as well as from the Americas,

---

[34] Robert Wodrow to Edward Lhuyd, 12 January 1702, in Sharp, *Early Letters*, 188. Among the items donated by Wodrow are those volumes by Pomponius Mela and Sacrobosco, Dutch treatises on gems and stones, Gessner's *De omni rerum fossilium genere*, and a "Castlemaine Globe," together with its description from 1679, *Munimenta Alme Universitatis Glasguensis*, vol. 3 (Glasgow: Maitland Club, 1854), 447-8.

[35] Robert Wodrow to Edward Lhuyd, 12 January 1702, in Sharp, *Early Letters*, 188.

[36] Wodrow's collection catalogue exists in two forms. One is a manuscript transcript made by the Glasgow educator John Anderson (1726-1796), dated 1 October 1760, with the title "Eastwood Musaeum," and kept at Strathclyde Archives MS 10 (OA 5/1/1), hereafter *Eastwood Musaeum*. It seems that the title "List of Materials for a Natural History," was given by Anderson to the manuscript, which he had obtained from Wodrow's son Peter (also referred to as Patrick). The other copy was made by Robert Sibbald sometime after 1703 and is kept at the NLS Adv. MS 13.2.8. Sibbald's copy, which he called "A Catalogue of Mineralls and Figured Stones found in Scotland in M.R.W. cabinet," is incomplete and also contains transcription errors.

Africa and Asia, evidence of a well-connected cosmopolitan collector, and places him among other Scottish *virtuosi* as a "good Baconian [who was] able to appreciate the significance given to natural historical information which he sought both by the natural philosophers and by rational theologians."[37] However, closer inspection of the catalogue reveals that, although the geographic origin of Wodrow's specimens is extensive, most of them were derived from Scottish locales.[38] Furthermore, most of the items which have a geographic designation are from close to Wodrow's home in Glasgow, indicating that he collected these himself.[39]

Wodrow's main interest, as evidenced by his correspondence and his catalogue, was in the realm of fossils. While Wodrow's earliest extant correspondence about fossils dates from July 1699, it was the Scottish visit of the Welsh keeper of the Ashmolean Museum in Oxford, Edward Lhuyd (1660–1709) later that year, which increased Wodrow's interest and catalysed the formation of a network that was fuelled in part by an interest in figured stones.

7.2 Edward Lhuyd in Scotland

On the surface, the Scottish visit in the winter of 1699/1700 of the Welsh keeper of the Ashmolean Museum in Oxford, Edward Lhuyd (1660–1709), seems to be of little consequence for the history of natural history.[40] Accounts of Lhuyd's fossil collecting either ignore his Scottish journey, or see it as a mere interruption of his longer Irish and Continental tour between 1697 and 1701, and accounts of his journey have concentrated on the importance of his time in Scotland for his antiquarian and etymological work.[41] The reason for this is that Lhuyd's visit to Scotland was relatively brief and, as he noted, too late

---

[37] Emerson, "Did the Scottish Enlightenment Emerge in an English Cultural Province?" 10.
[38] For a map of Provenance locations mentioned in Wodrow's catalogue, see Rene Winkler, "Robert Wodrow's Eastwood Museum," accessed August 1, 2024, tinyurl.com/wodrow.
[39] Withers has stated that in geographical matters, "Wodrow was no field scientist," *Geography, Science and National Identity*, 86.
[40] The most thorough biography of Lhuyd is Brynley F. Roberts, *Edward Lhwyd: C.1660-1709, Naturalist, Antiquary, Philologist* (Cardiff: University of Wales Press, 2022). Many of Lhuyd's letters have been edited by Gunther, *Early Science in Oxford*, and more are accessible via EMLO.
[41] Roberts, *Edward Lhwyd*, 172. John Lorne Campbell and Derick S. Thomson, *Edward Lhuyd in the Scottish Highlands, 1699-1700* (Oxford: Clarendon Press, 1963). Michael Hunter, *The Occult Laboratory: Magic, Science, and Second Sight in Late Seventeenth-Century Scotland* (Woodbridge: Boydell Press, 2001), 25-6.

in the year for making detailed observations pertaining to natural history.[42] Furthermore, the main written output of his journey, Lhuyd's *Archaeologica Britannica* (1707) dealt only with philological and ethnographic matters, and the planned second volume of that work which was to deal with the natural history of the British Isles, did not see publication.[43] However, before embarking on his journey, Lhuyd had been one of the key participants in the English debates about the origins of formed stones in 1690, and had been engaged in what Paula Findlen termed the "fossil wars" that surrounded the publication of John Woodward's *Essay toward a Natural History of the Earth* (London, 1695).[44] Lhuyd's *Lithophylacii Britannici Ichnographia*, his major work on figured stones and minerals and theories of fossil generation, had finally been published earlier in 1699.

There is a large scholarly literature on the fossil debates, which focuses on the social, material, intellectual and theological implications of the discourse surrounding the origin of figured stones.[45] Among British participants of that debate, the roles of Lhuyd and Woodward, as well as Martin Lister, John Ray, Robert Plot and other English participants in that debate have been highlighted.[46] However, in the historiography of early modern fossil collecting, there is scant reference to any developments in Scotland.[47] This is largely because the scholarly literature has tended to emphasised the theories, rather than the practices of fossil collecting which underpinned these theories, and Scottish collectors of fossils, although they were interested in these debates, did not publish anything.[48]

While, as will be seen below, collecting was used particularly by Wodrow to speculate

---

[42] Roberts, *Edward Lhwyd*, 176-181. Campbell and Thomson, *Edward Lhuyd*, 6-7

[43] Gunther, *Early Science at Oxford*, 41-2. Lhuyd's notebooks from the journey are now lost.

[44] Paula Findlen, "The Specimen and the Image," *Huntington Library Quarterly* 78, no. 2 (2015), 236.

[45] Important contributions include Joseph M. Levine, *Dr. Woodward's Shield: History, Science, and Satire in Augustan England* (Berkeley: University of California Press, 1977); Rhoda Rappaport, *When Geologists Were Historians, 1665–1750* (Ithaca: Cornell University Press, 1997); Poole, *The World Makers,* and Barnett, *After the Flood*.

[46] E.g. Anna Marie Roos, "Salient Theories in the Fossil Debate in the Early Royal Society: The Influence of Johann Van Helmont," in *Controversies*, ed. Marcelo Dascal and Victor D. Boantza, vol. 11 (Amsterdam: John Benjamins Publishing Company, 2011), 151-70 and Anna Marie Roos and Edwin D. Rose, "Lives and Afterlives of the Lithophylacii Britannici Ichnographia (1699), the First Illustrated Field Guide to English Fossils," *Nuncius* 33, no. 3 (2018): 505-536.

[47] Rappaport mentions only Wodrow's reluctant engagement with Woodward's theories, *When Geologists Were Historians*, 160-2.

[48] The only substantial Scottish publication related to that debate is the tract by the Aberdeen apothecary Mackaile, *Terrae Prodromus Theoricus*. However, Mackaile used theological and chymical arguments, rather than fossil specimens, and he did not seem to have been a major contributor to Scottish collections of naturalia. Mackaile's work is considered in Barnett, *After the Flood*, 149-150, 154-5.

about hypotheses of fossil generation, theory was not the primary emphasis of the Scottish collectors, and for the purposes of this thesis the different theories of fossil generation will not be considered in detail. Briefly, while Lhuyd was reluctant to commit to it dogmatically, he believed that fossils of many marine animals which are found far away from existing seas could be the result of the seed of these animals being washed into the cracks of the earth.[49] Woodward by contrast, claimed that all fossils were deposited by the Deluge, which dissolved the earth and which transported and deposited marine animals in different geological depths according to their specific gravity, and he forcefully argued this in his *Essay*. Concurrently, the idea that many marine *fossilia* were *lapides sui generis* – formed stones of non-organic origin – was held by Martin Lister, not only a close friend of Lhuyd but also Sibbald's closest associate in the Royal Society.[50] While, as will be seen, works of the England-based participants in the fossil wars were read and discussed in Scotland Lhuyd alone visited Scotland, bringing not only his theories but also his practical experience to the country in person.

Lhuyd arrived in Kintyre from Antrim in the final months of 1699.[51] He spent some time in Glasgow and travelled along the Kintyre coast and to Mull and Iona and was in Edinburgh by 12 December 1699. At Glasgow, Lhuyd was shown Roman inscriptions by the principal of the university, William Dunlop (c. 1654–1700), who had various antiquarian interests, and who had procured these inscriptions along with some Saxon coins for the university library.[52] Robert Wodrow, then keeper of the library, made a favourable impression on Lhuyd. The Welsh keeper was impressed, as Paterson was to report later, with Wodrow's progress "in that Part of Natural History, wch he[Lhuyd] with such Industry & Sagacity hath cultivated & Illustrated," that is in fossils.[53]

Lhuyd's assessment of Wodrow's skill in natural history was, however, not only founded on the quality of the collection he saw at Glasgow. During Lhuyd's visit, Wodrow took the

---

[49] An summary of Lhuyd's theory which forms the second part of the *Lithophilacii* is given in Roberts, *Edward Lhwyd*, 111-119.
[50] The relationship of Lister's theories to Helmontian iatrochemistry is shown in Roos, "Salient Theories," 153-162.
[51] Campbell and Thomson, *Edward Lhuyd*, xix, give August 1699 for the date of Lhuyd's journey from Ireland, but Roberts gives November or December as likely months. Since Lhuyd was already in Edinburgh by the beginning of December, an autumn journey seems probable.
[52] Gunther, *Early Science in Oxford*, 425. Sharp, *Early Letters*, 24-5.
[53] *Wod.Let.Quarto* vol. I, f.95

Welsh naturalist on a collecting trip to the Auldhouse Burn, south of Glasgow, a "rich repository of nature" which had proved fruitful for Wodrow on previous occasions.[54] This trip was memorable for Lhuyd who, in 1703, asked Wodrow for more specimens from that location, and even a decade later recalled the visit enough to ask Wodrow to procure a "curious sort of Pyramidal stone" from the Auldhouse Burn.[55] Wodrow himself often returned to the Auldhouse Burn, and when his appointment as preacher to the Eastwood parish in 1703 meant that his house was situated within a mere quarter mile of the rivulet, Wodrow saw himself as being "by Providence cast," there.[56] During Lhuyd's journey, he was keen to procure local contacts, and he had no previous correspondents in Scotland.[57] Wodrow's engagement with the subject close to Lhuyd's heart, as well as his knack for identifying and finding rare fossils, meant, therefore that he might be a useful correspondent in Scotland for the Ashmolean keeper on this matter.

After Glasgow, Lhuyd went to Edinburgh, where he met Robert Sibbald, who had been suggested to him as a useful contact by the Rev John MacQueen (1643–1733), who had led Sibbald's parish at Edinburgh.[58] Lhuyd saw some of the city's museums and collections, but reported to Martin Lister that none of these impressed him very much: the town college museum "consists of such exotics as are too be seen in most other collections; and contains very little of the Product of their own country," and Lhuyd described Sibbald's collection as "tolerable," although it is unclear whether Lhuyd referred to Sibbald's own collection or that of the *Auctarium* kept at the college hall.[59] The only noteworthy specimens for Lhuyd were some crinoidal and trilobitic fossils, as well as some specimens of marine animals, and some of the marine animals.[60]

During his visit to Edinburgh collections, Lhuyd advised the keeper James Paterson to get in touch with Robert Wodrow in Glasgow, which Paterson did promptly in November

---

[54] Sharp, *Early Letters*, 10, 22, 98

[55] Edward Lhuyd to Robert Wodrow, 11 December 1703, *Wod.Let.Quarto* vol. II, ff. 101–102. Edward Lhuyd to Robert Wodrow, 15 May 1709, *Wod.Let.Quarto* vol. II, f. 120.

[56] Sharp, *Early Letters*, 33.

[57] Roberts, Edward Lhwyd, 177.

[58] John MacQueen to Edward Lhuyd, June 2. 1697, Bodl. MS Ashmole 1816, f.279 via EMLO.

[59] Edward Lhuyd to Martin Lister, Dec. 15. 1699, Bodl. MS Lister 36, f.242 via EMLO.

[60] Entrochites and pectunculites in contemporary terminology. Edward Lhuyd to Martin Lister, Dec. 15. 1699, Bodl. MS Lister 36, f. 242. These might be the specimens described in Sibbald's *Auctarium*, 64, 119. Sibbald noted that he had also collected Scottish fossils, including entrochites and pectunculites, with Andrew Balfour. Sibbald, *Memoria Balfouriana*, 66, 80.

1699.[61] Lhuyd left Edinburgh the following month, and stayed for a few days at Linlithgow, close to the home of Robert Sibbald at the Kipps, and he collected some specimens at the nearby Bathgate limestone quarries, some of which he sent to the museum at Edinburgh, probably in an attempt to encourage Paterson further. [62] Sibbald did not accompany Lhuyd to Linlithgow or the Bathgate hills, although he gave Lhuyd advice on how to find marine fossils at the quarries, as he had been collecting there together with Andrew Balfour.[63] Lhuyd's second stay on the 20 December at Glasgow was brief, and he gave Wodrow more of the fossils he had collected in the Bathgate hills, before rushing back towards Ireland the next morning.[64] Detained at Campbeltown by bad weather on his return journey to Ireland at Kintyre, Lhuyd collected petrified corals and some shells and then left Scotland at the end of January and never returned to the country.[65] In addition to his new contacts, Scotland had been profitable for Lhuyd in fossil matters, and he reported to Lister that he had found "two fossils *toto genere* new," as well as some fossil moulds in flint and spar.[66]

Lhuyd's comments suggest that he saw the Edinburgh collection as inferior to that of Wodrow in Glasgow, but he might also have been alarmed by another aspect of it. If he did see the *Auctarium* collection, he could not have failed to notice that a considerable number of the marine fossils in that collection had been supplied by his "implacable enemy," John Woodward.[67] Woodward was a prolific exchanger of fossil specimens and the presence of these items in the Scottish collection was perhaps not unexpected.[68] However, in his *Auctarium* catalogue, Sibbald had also singled out Woodward as the leading exponent of the idea that petrifactions were not just imitations generated by nature, but had previously

---

[61] James Paterson to Robert Wodrow, 12 November 1699, *Wod.Let.Quarto* vol. I f. 95.
[62] James Paterson to Robert Wodrow, 2 (or 11) January 1700, *Wod.Let.Quarto* vol. I f. 96.
[63] Robert Sibbald to Edward Lhuyd, [n.d., but probably December 1699], Bodl. MS. Carte 269, f. 132r. via EMLO.
[64] Robert Wodrow to James Paterson, 21 December 1699, Sharp, *Early Letters*, 35: "several kinds of Entrochi, a piece of the Fungites and Fasciculus tubulorum & a piece of [Lhuyd's] Lythostrochion (not so fine as that in his Lythophylacium by far)." These specimens are in *Eastwood Musaeum*, Shottle 9.
[65] Gunther, *Early Science in Oxford*, 426.
[66] Gunther, *Early Science in Oxford*, 425.
[67] Of the 25 marine fossil entries in the *Auctarium*, 12 explicitly name Woodward as the donor, and several others come from England, suggesting Woodward as the source, together with one specimen of *Lapis judaicis* and a figured stone in form of a star. *Auctarium*, 60, 62, 64-7. On "implacable enemy," Roberts, *Edward Lhuyd*, 149.
[68] On Woodward's collecting, see Levine, *Dr. Woodward's Shield*, 93-113.

been living things.[69] In the theoretical debates between Lhuyd and Woodward, differing claims about the extent and quality of their respective collections upon which these theories were built played an important role.[70] Collections were not only augmented by exchange with other naturalists but also by the dispatch of agents to different parts of England, who sought to establish local contacts as well as gather specimens from different locales.[71] This process was fiercely competitive and reflected in the language used. For instance, in his letters, Lhuyd often referred to Woodward's agents as "missionaries," and members of Lhuyd's circle kept track of competitor's actions.[72] One of Lhuyd's correspondents, the Yorkshire-based Richard Richardson (1663–1741), reported back to Lhuyd that his own search for fossils in the Inglebrough limestone was much more successful than "Dr Woodwards Missionarys who showed what they soe much boasted of to," their mutual friend Ralph Thoresby."[73] Lhuyd and Woodward's rivalry engendered a vitriolic language of espionage and suspicion. When advising Richardson about a visit to Woodward's collection in London, Lhuyd warned that "it must be I doubt incognito."[74] Martin Lister, who was Lhuyd's closest collaborator, speculated that the disappearance of some papers meant that Lhuyd's agent Walter Thomas "hath mett with some privaters either upon the road or at London."[75] Lister hinted that this might have not been ordinary brigandage, and warned: "the Arch pyrate W[oodward], is roving about everie where."[76]

While, apart from the specimens Woodward sent to Scotland, there is no evidence of his agency in the country, in this climate of competition, Lhuyd's attempts to establish a foothold in Scotland might, be partly seen as "fossil diplomacy."[77] By visiting the country, establishing contacts, and sending his own specimens, Lhuyd might have aimed to secure preferential access to a limited supply of specimens, as well as to counter the uncontrolled dispersion of Woodward's contentious theories of fossil generation. For his part, Lhuyd

---

[69] "[…]inter quos agmen ducit Doctissimus Dominus *Woodward*, qui in Libro Anglicana Lungua edito, eam opinionem multis Argumentis confirmare nititur," *Auctarium*, 61

[70] Findlen, "Specimen and Image," 241.

[71] Levine, *Dr. Woodward's Shield*, 93-4.

[72] Letters from Edward Lhuyd to William Nicolson and Richard Richardson, reprinted in the 1760 version of Lhuyd's *Lithophylacii*, 112-4

[73] Richard Richardson to Edward Lhuyd, 25 June 1702, Bodl. MS. Ashmole 1817a, f. 276v via EMLO.

[74] Edward Lhwyd to Richard Richardson, [5 April] 1702], BL Sloane MS 4063, ff. 151-2 via EMLO.

[75] Martin Lister to Edward Lhwyd, 14 January 1696, Bodl. MS. Ashmole 1829, f. 43 via EMLO.

[76] *Ibid*.

[77] On the present-day employment of (living) animals to establish political soft-power, see Falk Hartig, "Panda Diplomacy: The Cutest Part of China's Public Diplomacy," *The Hague Journal of Diplomacy* 8 (2013): 49-78.

established two important nodes of correspondence regarding *fossilia* in Edinburgh and Glasgow, and he encouraged the collecting efforts of the two young keepers by sending several boxes of specimens to Scotland. Unfortunately, his continued travels meant that he was not able to make a more substantial shipment to the country until 1702, after Paterson's departure.[78] With regards to Wodrow and Paterson, contact with the famous English curator and naturalist showed that a keepership could provide a beneficial career trajectory. Furthermore, Lhuyd's visit not only catalysed their professional relationship, but also influenced the way in which specimens in Scotland were collected, identified and exchanged within Wodrow's collecting network.

7.3 Lithoscoping in Scotland

Wodrow's correspondence regarding natural history and especially *fossilia* included Robert Sibbald and the professor of botany, James Sutherland at Edinburgh, as well as the Scottish ministers Lachlan Campbell and John Maclean in Kintyre and James Fraser in the Highlands, and the advocate Alexander Edward in Ayr.[79] For the most part, these correspondents were of a similar social standing to Wodrow, the exceptions being Sibbald, and the retired Scottish advocate, Alexander Seton of Pitmeddan (1639–1719).[80] The Cumberland-based Episcopalian minister William Nicolson (1655–1727) was Wodrow's most important English contact and also represented an intermediary between Lhuyd, Wodrow and Sibbald, with Lhuyd occasionally writing directly to Wodrow.[81] James Paterson became Wodrow's most important correspondent between 1699 and 1702, and besides his function as keeper of the museum and Sibbald's agent, Paterson became also one of Wodrow's main contacts for acquiring books and catalogues at Edinburgh.[82] Indeed, almost all of Wodrow's correspondents shared additional interests apart from natural history, and Wodrow's

---

[78] Francis Paterson to Robert Wodrow, 6 May 1702, *Wod.Let.Quarto* vol. I, f. 162.

[79] For a map of Wodrow's correspondents regarding natural history, see Winkler, "Robert Wodrow's Eastwood Museum."

[80] Two letters from Wodrow to Alexander Seton are recorded in Sharp, *Early Letters*, 90-2 and 124-6.

[81] D. W. Hayton, "Nicolson, William (1655–1727), Church of Ireland bishop of Derry and antiquary," *Oxford Dictionary of National Biography* [Online], 2008. Wodrow wrote at least sixteen letters to Nicolson between 1699 and 1702, Sharp, *Early Letters*.

[82] There are twenty extant letters from Paterson to Wodrow, and sixteen from Wodrow to Paterson, *Wod.Let,Quarto*, Sharp, *Early Letters*. Mann, "A Spirit of Literature ," 102.

extensive correspondence network included those without an interest in natural history, and with whom he only discussed antiquarian, librarian, political or theological matters.[83] However, among those who were correspondents on natural history matters, and who are discussed here, a shared language and friendship emerged which is most evident in Wodrow's correspondence with Paterson.

The initial correspondence between Paterson and Wodrow, aimed at establishing a scholarly connection, was of remarkable civility and restraint.[84] Paterson sent his first letter to Wodrow in November 1699, while Lhuyd was still in the country, asking Wodrow to "communicate to me what discoveries you have made in [fossils] or any other part of Natural History, to wch both my Inclination & present Employment obliges me to apply my self, I will reckon it a very singular Favour; & tho I cannot promise to make you suitable Returns, will be most ready to serve you to […] ye utmost of my Power"[85] Wodrow, in return, claimed that, despite Lhuyd's praise, his "progresse in Natural History is not worth the naming, far lesse the commending, and raising a desire in you of acquaintance," and that he had neither training, nor experience in natural history, in short he lacked, "a head for making any progresse in this study."[86] This established the relationship of the coeval young men as a working relationship of equals, both in social status as well as in their knowledge of natural history. Over the course of the following months, this working relationship was marked by an increased cordiality. Whereas Paterson's salutation to Wodrow in November 1699 had been the neutral "Sir," by March 1700 this had evolved into the more familiar "Dear Comrade," often abbreviated "D.C.," a form of greeting reserved for Wodrow for close correspondents, most often ministers.[87] By contrast, Wodrow would always address those of a higher social status, like Robert Sibbald or William Nicolson, as "Honoured Sir" or "Reverend and Learned Sir," respectively.[88]

As both of them acknowledged, Wodrow, nor Paterson had much training in the collecting

---

[83] On Wodrow's political correspondence, see Raffe, "Wodrow's News."
[84] On letters of introduction, see Goldgar, *Impolite Learning*, 14.
[85] James Paterson to Robert Wodrow, 12 November 1699, *Wod.Let.Quarto* vol. I, f. 95.
[86] Robert Wodrow to James Paterson, 21 December 1699, Sharp *Early Letters*, 34.
[87] *Wod.Let.Quarto* vol. I, ff. 95, 96, 110, 115. Sharp, *Early* Letters, 34, 36, 64, 71, 77, 82. Notably, in 1704 when writing to Wodrow from Oxford after a hiatus of two years, Paterson had reverted to the formal "Dear Sir," James Paterson to Robert Wodrow, 29 March 1704, *Wod.Let.Quarto* vol. II, f. 106r.
[88] Sharp, *Early Letters*, passim.

of natural history specimens, nor did most of Wodrow's correspondents.[89] However, collecting expertise could be shared in formal and informal ways, as shown in Balfour's *Letters* to Murray.[90] There were printed guides to collecting, such as those by the collector London apothecary James Petiver (c.1663–1718) from 1698 onwards, or John Woodward's *Directions for the Collecting, Preserving, and Sending over Natural Things, from Foreign Countries* (1696).[91] Those instructions tended to be rather brief and often were concerned mainly with the preservation and transport of delicate insects, shells, plants or parts of animals. For *fossilia*, the advice could be quite general. Petiver, for instance, advised that formed stones, which resembled shells, bones or impressions of plants or animals on slate, could be found "in *Quarries, Mines, Pitts, Caves*, or where-ever the Earth is laid open."[92] Woodward's primary concern with fossils meant that his advice was a little more comprehensive, and he recommended, for instance, that marine shells found in hard stones like marble should not be broken off, but rather collected with the rock fragment in which they were embedded in, by contrast with specimens which could be procured from loose earth, gravel, chalk or marl.[93] There is little indication that the Scottish participants in Wodrow's network had access to any of these printed instructions, and knowledge seems to have been shared only informally, during joint excursions like that undertaken by Lhuyd and Wodrow to the Auldhouse Burn.[94]

While we do not know how much knowledge Lhuyd shared with Wodrow and Paterson, he seems to have made some didactic impact, as can be seen from the language that members of Wodrow's circle adopted. This is particularly evident by the use of the term *lithoscoping*. This term, and the related words *lithoscopist* (alternatively *lithoscoper* or *lithoscope*) seem to have been exclusively used in Lhuyd's circle. Use of it did not survive the end of the first

---

[89] On scientific field work, see Livingstone, *Putting Science in its Place*, 40-8. Most of the history of the practices of early modern collections are concerned with botanical excursions and materia medica, see, for instance, Ogilvie, *The Science of Describing,* 70-4; Findlen, *Possessing Nature*, 158-63.

[90] See Chapter V.

[91] Jarvis, "Take with You a Small Spudd or Trowell," 212-39. Woodward's instructions are printed in Appendix V of the same edited volume.

[92] James Petiver, *Advertisement* (London: S. Smith & B. Walford, 1698), n.p.

[93] John Woodward, *Brief instructions for making observations in all parts of the world as also, for collecting, preserving, and sending over natural things* (London: Richard Wilkin, 1696), 11.

[94] James Sutherland did ask Petiver to send him several copies of his instructions to Edinburgh, Sutherland intended these for his students which were being sent abroad. James Sutherland to James Petiver, 25 March 1700, BL Sloane MS 4063 ff. 9-10.

decade of the eighteenth century.[95] This makes it not only a synonym for the gathering and gatherers of stones, but it also makes it a kind of shibboleth by which the connection between Lhuyd, Wodrow and Paterson can be explored and through which we can establish some of the practices which were underlying the activity of fossil collecting.

The first recorded use of the term *lithoscoping* can be found in James Petiver's diary, when he noted in August 1691 that he went "went about Thirty miles into the Country a Lithoscoping" with the young Edward Lhuyd.[96] This might make Petiver, rather than Lhuyd the originator of the word, but soon after the neologism was firmly embedded in Lhuyd's vocabulary and was used frequently in the correspondence between Lhuyd and Martin Lister. For Lhuyd and Lister, lithoscoping did not simply represent picking up stones during a leisurely ramble in the countryside, but instead signified a skilled activity that could be taught and learned, even by those who might otherwise have no education in natural historical matters. A lithoscopist was someone who often was paid to go and collect fossils and other geological productions for the naturalists in Lhuyd's circle. The teaching of lithoscopists required the presence of the naturalist, and in a letter to Lister in 1692, Lhuyd wrote that he had: "made two or three countrey fellows here excellent lithoscopists; but I doubt their skill & curiosity will soon be starv'd. They are labourers in stonepits & are fit to make any discoveries of this kind."[97] Not only labourers with expertise in cutting stones could be "made" into lithoscopists for the museum, however, and one of Lhuyd's gatherers worked as an itinerant shoemaker, whose geographical mobility was well-suited to the gathering of material from different places.[98] Once engaged, lithoscopists could also be employed in other tasks, and Lister sent one of his lithoscopists to collect snails for him.[99] However, a degree of trust was necessary, and Lhuyd and Lister found themselves deceived by one of their regular paid collectors, a Witney lithoscopist by the name of John Smith.[100]

---

[95] It seems to have been last used by Wodrow in his final letter to Lhuyd in 1709, reminiscing about their joing excursion to the Auldhouse Burn "where you and I were a lithoscoping," Robert Wodrow to Edward Lhuyd, 26 August 1709, *The Correspondence of the Rev. Robert Wodrow*, ed. Thomas McCrie, vol. 1 (Edinburgh: The Wodrow Society, 1842), 33.

[96] Anna Marie Roos, "'Only Meer Love to Learning': A Rediscovered Travel Diary of Naturalist and Collector James Petiver (c.1665–1718)," *Journal of the History of Collections* 29, no. 3 (2017), 386.

[97] Edward Lhuyd to Martin Lister, 23 December 1693, Gunther, *Early Science at Oxford*, 172.

[98] *Ibid.*

[99] Martin Lister to Edward Lhuyd, 19 Oct 1693, Bodl. MS Ashmole 1816, ff. 103-4 via EMLO.

[100] Edward Lhuyd to Martin Lister, 26 August 1695, Gunther, *Early Science at Oxford*, 234-5. Roberts, *Edward Lhuyd*, 90-1.

Smith not only gave away the trade secret of how to collect particular specimens to a rival collector but also sold specimens to that collector which Lhuyd considered theirs by right. To naturalists in collecting specimens, Lhuyd had envisaged writing a portable field guide, and in 1691 proposed that he intended to write a guide which “may be of use for lithoscopists to carry with them into stonepits gravelpits &c.”[101]

When coming to Scotland nearly ten years later, Lhuyd not only brought the manual with him, which had morphed into his *Lithophylacii Britannici Ichnographia* (1699), but he also carried with him the language of lithoscoping. The first use of lithoscoping in Scottish correspondence appears a month after Lhuyd’s visit when Paterson wrote to Wodrow that he had so far “no Opportunity to Search ye Ground here as yet […] But as soon as I go a Lithoscoping (as Mr L[huyd] was wont to term it) you shall have an account of my success.”[102] Wodrow adopted this term in correspondence with his collecting contacts. In a letter, to the Rev. Lachlan Campbell (1675–1708), who was tutor to the Argyle family and who might also have met Lhuyd on his Scottish tour, Wodrow spoke of his “lythoscoping friends,” among which he counted Campbell.[103] Unlike Lister and Lhuyd, most of Wodrow’s correspondents did not have the financial means to employ paid lithoscopers, although James Paterson reported that he had engaged an “Ingenious Friend, whom I have put on ye searching for Fossiles.”[104] In Wodrow’s network, therefore, the term lithoscoping was almost exclusively used as a pleasurable and often sociable activity among equals. In a letter to his friend, Alexander Stevenson in Ayr, Wodrow thanked him for a present of various books, and *naturalia* and offered his correspondent, along with natural history curiosities, a philosophical riddle “to divert you a litle from your lithoscoping.”[105] Wodrow would have liked to send Stevenson some fossils but had to admit that he had not put them into order but promised shortly to let Stevenson know of any duplicates in his possession, including those from a recent visit to the Auldhouse Burn.[106] Stevenson, in his reply, assured Wodrow that he had already been “diverted from Lithoscoping a while,” by the visit of an Irish

---

[101] Edward Lhuyd to Martin Lister, 27 December 1691, Gunther, *Early Science at Oxford*, 152.
[102] James Paterson to Robert Wodrow, 11 January 1700, *Wod.Let.Quarto* vol. I, f. 96r.
[103] Campbell and Thomson, *Edward Lhuyd in the Scottish Highlands,* xix.
[104] James Paterson to Robert Wodrow, 5 March 1700, *Wod.Let.Quarto* vol. I, f. 112r.
[105] Robert Wodrow to Alexander Stevenson, 25 July 1700, Sharp, *Early Letters*, 100.
[106] *Ibid*.

chymist by the name of George Martin whom he had to entertain.[107] In his next letter to Stevenson, Wodrow sent some of the promised fossils from his collection and asked Stevenson to continue sending him specimens for his collection.[108] He was recently out of town at Hamilton, but was not able to make this into a collecting trip, as he had "noe body to lithoscope with me."[109]

Despite Lhuyd and Wodrow's December excursion to the Auldhouse Burn, Scottish lithoscoping was not only a sociable but also a seasonable activity, confined usually to the summer months, both due to the weather as well as due to term-time engagements. Wodrow wrote to Nicolson in October 1701: "my station confines me to this place for a while, soe our subterranean inhabitants shall be at rest for me till Spring come about."[110] It seems that engagements in the winter of that year took longer than expected and Wodrow wrote to Sutherland the following May that he had "not be[en] lithoscoping this season, but as soon as I discover any thing that way worth your nottice, you shall have accompt."[111] Even during the summer months, lithoscoping was weather-dependent and Wodrow expressed regret that inclement Scottish weather in July 1700 had spoiled James Paterson's stone picking.[112]

Apart from talking about the pleasures of lithoscoping, correspondence about fossils within Wodrow's network was mostly concerned with one of three themes: specimen exchange, the identification of specimens, and theories of fossil generation. It is important to note that many letters did not confine themselves to only matters of fossils or natural history and fossils were often discussed before or after other subjects. The pleasurable sociability inherent in lithoscoping means that usually, but not always, matters of business, such as book purchases were prioritised, and the gathering of stones was relegated to a secondary concern.[113] However, many of the letters do concern themselves primarily with

[107] Alexander Stevenson to Robert Wodrow, 5 August 1700, *Wod.Let.Quarto* vol. I, f. 126v.
[108] Robert Wodrow to Alexander Stevenson, [Sept. 1700], Sharp, *Early Letters*, 110.
[109] *Ibid.*
[110] Robert Wodrow to William Nicolson, 20 October 1701, Sharp, *Early Letters*, 176.
[111] Robert Wodrow to James Sutherland, 9 March 1702, Sharp, *Early Letters*, 190.
[112] Robert Wodrow to James Paterson, 4 July 1700, Sharp, *Early Letters*, 82.
[113] However, the preference could also be reversed. When writing to Sibbald in August 1700, Wodrow gave a detailed description of some fossils first, before briefly mentioning in a postscript that he had given James Paterson an account of the books which pertained to Sibbald's didactic project of Sedulius. Sharp, *Early Letters*, 109-10.

fossils and were used as a means of fuelling a relationship which might prove useful in other matters.

The geographic distance between Wodrow and most of his correspondents means that the most common way of active participation in the fossil network was by the sending and receiving of specimens. Trade in specimens was done by exchanging duplicates, the vital resource of early modern specimen networks.[114] Letters in Wodrow's correspondence are full of requests for specimens which were deemed duplicates or triplicates by their collectors, and a lack of duplicates meant that no exchange could take place.[115] Once identified as suitable trade material, these specimens were packed in small boxes, labelled and shipped.[116] The same box was often returned, and the original sender might expect to receive it to be filled to the same extent by his correspondent, indicating that an equal exchange had taken place, where this was not so, the sender pointed it out.[117] Preserving equality in exchange was important, and Wodrow wrote to Nicolson when returning a box of specimens that "its laden, I dare not say soe richly as I received it... It comes not as any real return for soe valuable a present, but only as an indicium of quhat you should have if the place alloued."[118] Not all shipments of fossils were expected to receive an immediate return of new specimens. On some occasions, several boxes, presumably containing a similar selection of fossils, were sent from Nicolson and Lhuyd as bulk shipments, and both expected the fossil boxes to be distributed to specified correspondents.[119]

Despite their friendship, the exchange between Wodrow and Paterson seems to have been somewhat unequal. Institutional restraints hindered Paterson from embedding the

---

[114] On duplicates as contested objects in collections, see Ina Heumann, Anne Greenwood MacKinney, and Rainer Buschmann, "Introduction: The Issue of Duplicates," *The British Journal for the History of Science* 55, no. 3 (2022): 257-78.
[115] Wodrow regretted not being able to send specimens from new additions he had from Edinburgh, since "all of them almost are but single species," Robert Wodrow to Alexander Stevenson, 4 July 1700, Sharp, *Early Letters*, 81.
[116] E.g. Edward Lhuyd to Robert Wodrow, 2 April 1700, *Wod.Let.Quarto* vol. I, f. 121; Robert Wodrow to James Paterson, 8 July 1700, Sharp, *Early Letters*, 87-89; Robert Wodrow to William Nicolson, 13 April 1700, Sharp, *Early Letters*, 69-71; Robert Wodrow to Alexander Stevenson, 4 July 1700, Sharp, *Early Letters*, 80-81; Robert Wodrow to Alexander Stevenson, 7 Aug 1700, Sharp, *Early Letters*, 102-3.
[117] "it is full, but not seo weel filled as I gote it," Robert Wodrow to Alexander Stevenson, 7 Aug 1700, Sharp, *Early Letters*, 102.
[118] Robert Wodrow to William Nicolson, 13 April 1700, Sharp, *Early Letters*, 69.
[119] "I design to pick up such rare Fossils as this Countrey will afford; and shall convey these, in three distinct parcels (for your use, Mr Sutherland's and Mr Paterson's) to Edinburgh," William Nicholson to Robert Wodrow, 30 June 1701, *Wod.Let.Quarto* vol. I, f. 170.

museum collection into a network of specimen exchange. The collection remained the property of the council and college, which limited Paterson's ability to offer specimens from it to his correspondents. When, in April 1700, Robert Wodrow asked Paterson to send him any duplicates of fossils or natural curiosities, Paterson replied that he was not able to do so until he had gained permission from the college's ageing principal, Gilbert Rule, although he was confident that he would be able to procure this.[120] However, it seems that Rule's consent was hard to obtain, and a month later, Paterson had to make excuses again: "there's at present somewhat wch hinders me from sending you some specimena of ye Formed stones of our Museum; & yrfore you must at this time content your self wt what I can send you of my own."[121] In order to participate in Wodrow's network, Paterson had to resort to his private collection, which might have been quite substantial.[122] There are indications that Paterson did augment the town college collection, as specified in his remit, but it is not possible to what extent this took place, and there is little evidence that specimens from Edinburgh made it into other collections.[123] Wodrow often sent fossils to Paterson in Edinburgh, without specifying whether they were for the museum or Paterson's own collection, an ambiguity which Paterson might have been happy to leave unresolved. Paterson functioned both as an institutional curator as well as an individual collector, and his institutional position seems to have secured his place in Robert Wodrow's collecting network, while his personal collection helped sustain it.

Equally as pressing as the anxieties of conducting an equal exchange were the infrastructural challenges which came with specimen exchange. Within Scotland as well as between Scotland and Wodrow's English contacts Lhuyd at Oxford and Nicolson in Cumberland, exchange was often hampered by the strictures of the early modern system of transport.[124] Although Edinburgh, Glasgow and Carlisle lay along the main routes governed by governmentally appointed Scottish postmasters, the mail system governed by state

---

[120] James Paterson to Robert Wodrow, 13 April 1700, *Wod.Let.Quarto* vol. I, f. 120.
[121] James Paterson to Robert Wodrow, 13 May 1700, *Wod.Let.Quarto* vol. I, f. 122.
[122] Francis Paterson to Robert Wodrow, 6 May 1702, *Wod.Let.Quarto* vol. I, f. 162. James Paterson to Edward Lhwyd, 11 May 1702, Bodl. MS Ashmole 1817a, ff. 112-113 via EMLO.
[123] *Extracts from the Burgh Records* 1701-8, 19 May 1703, 49.
[124] On the naturalist postal correspondence in early modern Britain, see Yale, *Sociable Knowledge*, 62-6. On the importance of long-distance corporation for scientific practice, see Steven Harris, "Networks of Travel, Correspondence, and Exchange," in *The Cambridge History of Science: Volume 3: Early Modern Science*, ed. Katharine Park and Lorraine Daston, vol. 3 (Cambridge: Cambridge University Press, 2006), 341-62.

legislation was used mainly for official correspondence, like it was in England.[125] Private letters were sent by a relatively reliable system, particularly within Scotland, and although there were size restrictions, Wodrow could expect mail directed to the Glasgow postmaster to reach him three times a week by 1709 when he was settled in Eastwood.[126]

By contrast to letters, the transport of specimens both within and outwith Scotland was more difficult, and while the citizens of the British Republic of Letters were supported by a more-or-less functioning postal system, the Republic of Things had more arbitrary rulers. Early modern transport of *naturalia* was often made difficult by unreliable private carriers which often transported boxes between locations as a side business.[127] Particularly longer-distance transport relied on identifying the right opportunities. In January 1702, Wodrow excused not being able to send Lhuyd fossils from Glasgow to Lhuyd by a merchant but he "unhappily missed the opportunity by his going from hence without acquainting me."[128] A few months earlier, William Nicolson wrote to Wodrow that he would have liked to send him a collection of fossils from Cumberland, but lack of carriers prevented him from doing so, adding: "I hope their Numbers will not decrease by their continueing with me a while longer," perhaps indicating that they might find their way to other destinations.[129] Overland routes were often less reliable than sea routes, and Lhuyd complained of his Oxford location that it was "in an Inland Countrey, & very remote from the London Road to Scotland, wch. interrupts my Correspondence at Edinburrough, as well as with your self."[130] Even when an item was transported via sea, it could be lost on the last stretch of the journey. Having expected a book sent from London by Sloane via their mutual friend James Wallace in 1696, Sibbald had to report that even though the book made it to Scotland, it was "miscaried" on the final distance, adding "it is not the first time I have been so served."[131]

To prevent loss or damage of specimens, the preferred method in Scotland, as in England, was the use of private, trusted carriers. James Sutherland wrote to Wodrow in January 1702

---

[125] A. R. B. Haldane, *Three Centuries of Scottish Posts: An Historical Survey to 1836* (Edinburgh: Edinburgh University Press, 1971), 27.
[126] Wodrow, *The Correspondence of the Rev. Robert Wodrow*, vol. 1 (Wodrow Society, 1842), 34. James Sutherland to Robert Wodrow, 8 Jan 1702, *Wod.Let.Quarto* vol. II, f. 1.
[127] On the English carrier system, see Elizabeth Yale, *Sociable Knowledge*, 66-77.
[128] Robert Wodrow to Edward Lhuyd, 12 January 1702, Sharp, *Early Letters*, 188.
[129] William Nicolson to Robert Wodrow, 2 October 1701, *Wod.Let.Quarto* vol. I, f. 190.
[130] Edward Lhuyd to Robert Wodrow, 11[?] December 1703, *Wod.Let.Quarto* vol. II, f. 102.
[131] Robert Sibbald to Hans Sloane, 5 June 1696, EUL MS Dc 8.35, 1-2.

that he expected a parcel of fossils from Richard Richardson in Yorkshire, to be carried by a friend "that trades betwixt Leeds and Edinburgh, seeing Its both expensive and uncertain to send things by the Common Carieres, who have the last year lost severall Boxes both of his and mine."[132] Within the fossil network, these trusted carriers were usually students or acquaintances with a scholarly background.[133] On several occasions, Wodrow and Paterson sent items via Alexander Dunlop (1684–1747) the young son of the Glasgow principal William Dunlop, and on the first of these occasions, Wodrow requested Paterson to show Alexander the museum at Edinburgh: "He will be curiouse to see your collection of rarities, soe I hope quhen your conveniency alloues you will grant him this favour."[134]

Correspondence between Wodrow and the others also pertained to the correct identification of specimens, which could be done either by using a reference work, via a temporary exchange, or by meeting in person. It is not clear whether the lithoscopers used Lhuyd's *Lithophylacii Britannici Ichnographia* as a field guide, but it was used by Wodrow's correspondents as the primary reference work for identification and Wodrow expressed hopes for a second edition of the work. [135] Lhuyd's book also made correspondence easier, not only by providing uniform names for the specimens but also because entries in the book were numbered. The *Lithophylacium* followed the layout of the drawers of figured stones in the Ashmolean museum. The numbers corresponded to specimen numbers in the museum, and many of the specimens were accompanied by high-quality engravings of these specimens, making the book represent a "pocket museum," as one scholar termed it.[136]

---

[132] James Sutherland to Robert Wodrow, 8 January 1702, *Wod.Let.Quarto* vol. II, f. 1

[133] E.g. a Mr Topham, Robert Wodrow to William Nicolson, 3 July 1699, Sharp*, Early Letters*, 10; the schoolmaster Mr Hume, James Paterson to Robert Wodrow, 30 August 1700, *Wod.Let.Quarto* vol. I, f. 132; Mr Mill (possibly James Mill, later minister at Lerwick) Robert Wodrow to James Sutherland, 5 Nov 1701, Sharp*, Early Letters*, 178; an unknown young man described as having "a good Acquaintance with Physical and Mathematical parts of Learning; besides what has been his more particular and neccessary, Studies" William Nicolson to Robert Wodrow, 17 August 1701, *Wod.Let.Quarto* vol. I, f. 186; the divinity student Robert Paton, Robert Wodrow to William Nicolson, 20 October, 1701, Sharp, *Early Letters*, 176.

[134] Robert Wodrow to James Paterson, 26 Jan 1700, Sharp*, Early Letters*, 29. Robert Wodrow to James Paterson, 2 April 1700, Sharp*, Early Letters*, 64. Robert Wodrow to James Paterson, 8 June 1700, Sharp*, Early Letters*, 78. A few years later, Alexander Dunlop became professor of Greek at Glasgow, aged 20, J. M. Rigg and F. Lloyd Campbell, "Dunlop, Alexander (1684–1747), Greek scholar and university teacher," *Oxford Dictionary of National Biography* [Online], 2009.

[135] E.g. Robert Wodrow to James Paterson, 26 January 1700, Sharp, *Early Letters*, 37; Robert Wodrow to James Paterson, 8 June 1700, Sharp, *Early Letters*, 77. Robert Wodrow to William Nicolson, 18 October 1700, Sharp, *Early Letters*, 118.

[136] Marcus Hellyer, "The Pocket Museum: Edward Lhwyd's *Lithophylacium*," *Archives of Natural History* 23, no. 1 (1996): 43-60.

Wodrow's catalogue of his museum at Eastwook likewise followed the physical layout of his collection, although he did not normally number his specimens. The only exception to this were three "shottles," which contained twenty-three fossils Wodrow had received from Lhuyd.[137] Wodrow copied not only the specimen numbers of the *Lythophylacium*, he also arranged them in the same ascending order in which they were found in the original work. By having equivalent "duplicates" of Lhuyd's collection, the three shottles represented a section of the Ashmolean in Scotland. However, Wodrow seems to only have had intermittent access to the *Lithophylacium*, and on one occasion Paterson transcribed the names from Lhuyd's work which corresponded to a list Wodrow had sent him.[138] Institutional strictures meant that Paterson was not able to use it to take part in specimen exchange, and although it could function as a resource for mutual identification of fossil specimens, this required a donation or a visit.[139] Replying to an earlier letter of Wodrow's which had been accompanied by some fossils, Paterson stated that he was not able to give his opinion on them, but thought that that the two keepers "may perhaps come better to ye knowledge of several things of yt nature, if we had ye opportunity of talking about ym & comparing 'em together Coram [i.e. in person]."[140] Paterson and Wodrow did meet a few months later in Edinburgh, which might have been the only time they ever met face-to-face.[141] Generally, while in-person meetings were often desired, they remained rare among the Scottish lithoscopers.[142] It was particularly in the identification of specimens that Sibbald's opinion was sought, but at least until Paterson's departure, this was often done via an intermediary like Sutherland or Paterson.[143]

The third reason for correspondence between the collectors in Wodrow's network was speculation about the origins of fossils. However, among the Scottish lithoscopists, this

---

[137] *Eastwood Musaeum*, shottles 27-9.
[138] The reason for this is unclear as Wodrow's original letter to Paterson is missing. James Paterson to Robert Wodrow, 17 September 1701, *Wod.Let.Quarto* vol. I, f. 189. Wodrow stated in January 1700 that he did not have Lhuyd's catalogue with him. James Paterson to Robert Wodrow, 17 September 1701, 26 Jan 1700, Sharp, *Early Letters,* 37.
[139] Paterson urged Wodrow to visit the museum to help identify specimens James Paterson to Robert Wodrow, 5 March 1700, *Wod.Let.Quarto*, vol. I, ff. 111-2.
[140] James Paterson to Wodrow, 13 May 1700, *Wod.Let.Quarto*. vol I, f. 122.
[141] Robert Wodrow to James Paterson, 4 July 1700, Sharp, *Early Letters*, 82.
[142] On the preference for in-person meetings, see Elizabeth Yale, *Sociable Knowledge,* 61.
[143] E.g. Robert Wodrow to Robert Sibbald, 23 August 1700, Sharp, *Early Letters*, 108-110 and Sibbald's reply on 31 August 1700. *Wod.Let.Quarto* vol. I, f. 134. James Sutherland to Robert Wodrow, 8 Jan 1702, *Wod.Let.Quarto* vol. II, f. 1.

speculation was not only relatively rare: it was actively discouraged. Part of the reason might have been Lhuyd's influence, who was a reluctant theoriser.[144] John Woodward's incendiary *Essay Toward a Natural History of the Earth* (1695) was criticised by Lhuyd as overreaching into the realm of hypothesis, an action which Lhuyd called "too arrogant & usurping."[145] Lhuyd was keen to differentiate himself from Woodward in this matter and he believed that his own *Lithophilacii* differed from that of his rival in form and function. Before it was published, Lhuyd remarked to Lister that Woodward "need not be displeasd at my writing on ye subject (tho if he were I should not be much concerned) his work being philosophical discourses, & in English: but myne onely a classical enumeration with short descriptions of such of our English stones as have been hitherto discovered, in Latin."[146] Lhuyd and Lister did express ideas of fossil generation that ran counter to Woodward's theories, but the rules of civility demanded that these theories should be subservient to observation. After speculating about the origin of fossils in his *Historiae Animalium*, Lister included the statement that he would now cease speaking of these things and let the reader make up their own mind.[147] By contrast, Woodward was consciously using collecting practices to support his theory. In his *Brief Instructions*, he had advised collectors to search for "*Sea-shells*, and for *Stones* that *resemble them*, especially upon the *higher Grounds* […] and this too at great *Distances* from any *Sea*."[148] For Woodward's diluvial theories, it was crucial that shells be found away from the sea, and directing collectors to areas far inland would serve his purpose.

When speculation about the matter in Scotland did take place, it followed the same rules of self-critical civility that Lhuyd and Lister tried to employ, and that attempted to preserve the barrier between observation and hypothesis, even though this barrier was often chimerical.[149] Wodrow had a keen interest in theories of fossil generation and had discussed the current fossil theories with William Nicolson, who was following Lhuyd's ideas, as early as August 1699, although he judged that Woodward's book had "rather raised our desires then satisfied our hopes, at least by that quich we have: we shall hope the best [...] of that

---

[144] Roberts, *Edward Lhwyd*, 112-119.
[145] Roberts, *Edward Lhwyd*, 95.
[146] Edward Lhuyd to Martin Lister, [c. Sept 1695], in Gunther, *Early Science*, 283.
[147] Roos, *Web of Nature*, 180-1.
[148] Woodward, *Brief Instructions*, 6.
[149] On the reluctance of appearing to convince, see Shapin *Social History of Truth*, 222-3.

quhich is to come."[150] Shortly after, Sibbald had discussed Woodward's theories with Wodrow, while on a visit to Glasgow in October 1699.[151] Despite Sibbald's praise of Woodward in his *Auctarium*, he seemed uncommitted to any particular theory regarding the origins of fossils, and his interest in Lister's ideas on petrifactions had been mostly medical.[152] Wodrow, for his part, was interested in how Woodward's theories related to field observations, and remarked to Sibbald that, counter to Woodward's theories, he had found fossils of different specific weights at the same geological depth: "Quhat this may say against Mr Woodwards hypothesis I leave to you to determine."[153] While Sibbald confirmed Wodrow's observations in his private notes, he remained sceptical about hypotheses in general, remarking to Hans Sloane in 1702 that his own fossil collection was "not sufficient to rear up an hypothesis: that is better done by others already."[154]

While Lhuyd's visit in 1699 might have discouraged Wodrow from theorising for a while, he did remain interested in ideas of fossil generation, particularly how fossil specimens could support one or the other theory. In a letter to Paterson in July, Wodrow remarked that one of the specimens he was sending to Edinburgh, "serves much to justify Mr Lhuyds hypothesis as to the Entrochi," perhaps referring to Lhuyd's idea that there was a relationship between crinoidal fossils and basaltic rock formations, such as the Giant's Causeway in Ireland.[155] In November 1700, he asked his correspondent in the north, Alexander Seton of Pitmeddan his thoughts on the different fossil theories.[156] Wodrow claimed that "none of the 3 hypotheses are fully satisfying to me, and if I mistake not are not sufficient to solve the phaenomena that appear most commonly," and added that "perhaps we have not a sufficient stock of experiments to build a hypothesis on as yet, and

---

[150] William Nicolson to Robert Wodrow, 26 August 1699, *Wod.Let.Quarto* vol. I, ff. 81-2. Robert Wodrow to William Nicolson, 28 September 1699, Sharp, *Early Letters,* 25.
[151] Robert Wodrow to Robert Sibbald, 28 Oct 1699, Sharp, *Early Letters*, 27.
[152] In his *Scotia Illustrata*, Sibbald had ascribed to the ideas of Pliny and Kircher in seeing figured stones as *lusus naturae* which in which nature gave the lowest parts of its hierarchy, denied of life and movement, the shapes of higher forms of life: "In iis enim mire ludit Natura, ut quibus vitam & motum infimus ille gradus denegaverit, figuram faltem eorum, qui superioris gradus sunt, impertiret," pars 2, lib. 4, 49. By the time of writing the *Auctarium*, however, he was open to other theories as well. See also section 3.3 in this thesis.
[153] Robert Wodrow to Robert Sibbald, 28 Oct 1699, Sharp, *Early Letters*, 27. Other naturalists had raised similar concerns with Woodward's theory, Rappaport*, When Geologists Were Historians*, 161-2
[154] Sibbald stated Wodrow's account "holds in severall observations I made both in air and water," NLS Adv. MS. 33.5.19, f. 229. Robert Sibbald to Hans Sloane, 12 September 1702, EUL MS Dc 8.35, f.24.
[155] Robert Wodrow to James Paterson, 8 July 1700, Sharp, *Early Letters*, 87-8. Roos and Rose, "Lives and Afterlives," 512-4.
[156] Robert Wodrow to Alexander Seton, 4 November 1700, Sharp, *Early Letters*, 124-6.

it would be more satisfying to some if learned men would rather spend their time in making observations and tryalls then in devising neu hypotheses, of quhich I think ther shall be no end."[157] While this might have pleased anti-theorisers like Lhuyd and Sibbald, Wodrow seems to have become convinced through his own observations by Woodward's theory, that all figured stones derived from living matter. In 1702, his correspondent at Kintyre, Lachlan Campbell, had sent him some "nuts" (or seeds) which he had found in a layer of marle "above & under wch were Sundry Layers of Stony & Sandy Earth of different kinds," and which had been previously covered by a thick layer of a boggy marsh worn away by recent rains.[158] In his reply, Wodrow speculated that the marshy layer was probably modern, and "mosses need not for the most part be attributed to the Flood," as he had received reports from Renfrew about the remains of an ancient stone canal being covered by a thick layer of moss.[159] This led Wodrow to theorise that in most places, bogs were the result of decaying woodland in post-diluvial times. As Campbell had found the nuts in a stony layer, they must "with shells, formed stones, &c., be referred to the general deluge."[160] That fossils were the remains of once-living organisms and were deposited in deeper strata by the Deluge was consonant with Woodward's theory which Wodrow saw preferable to "either Steno, Ray, or our friend Mr Lhuyds hypothesis."[161] Some questions remained, however, and the question of gravity remained alongside "some other sphalmata proceeding from his want of ocular observations and taking things on trust from others."[162] However, Wodrow did not forget the rules of civility and excused his "philosophical, crude, and undigested rhapsody" to Campbell, hoping that his theorising should not "terrify you from going on in your subterraneous searches."[163]

Wodrow used collecting not only to speculate about the origins of figured stones. In a letter, to James Paterson, Wodrow hypothesised about the existence of an ancient volcano near Dùn Mac Sniachan on the west coast of Scotland, after he had received a pumice stone

---

[157] *Ibid.*, 125.
[158] Lachland Campbell to Robert Wodrow, 21 October 1702, *Wod.Let.Quarto* vol. II, ff. 77-8. These fossils made it into the *Eastwood Musaeum*, shottle 112, alongside "Two fossil nuts from Pollock moss."
[159] Robert Wodrow to Lachland Campbell, 9 November 1702, Sharp, *Early Letters*, 236.
[160] Sharp, *Early Letters*, 237.
[161] *Ibid.*
[162] *Ibid.*
[163] *Ibid.*

from that location.[164] This was appended by the usual caution of having crossed the line between strict observation and hypothesis: “I doubt not but you are by this time wearied with this kind of dull philosophizing,” and Wodrow regretted not being able to send Paterson a specimen for an “ocular demonstration.”[165] On this occasion, the hypothesis also made it into Wodrow’s museum catalogue where he kept the piece of pumice from Dùn Mac Sniachan in Argyll together with a piece of pumice obtained from Mount Aetna in Sicily, together with the note “This may give ground of enquiring whether there had been an Aetna there.”[166]

7.4 Dissolution

While there are no indications that Paterson’s uneven engagement with Wodrow regarding matters of natural history, and his inability to send specimens from the museum diminished Wodrow’s professional and personal regard of him, Paterson felt increasingly frustrated by what he saw as a failure to be useful in his post as museum keeper. This was not only due to the institutional restrictions placed on him but also because personal and patronage obligations meant that he was not able to spend much time on matters of natural history. In May 1701, a year and a half after his first letter to Wodrow, Paterson excused his lack of useful correspondence in financial language: “I'm now so much in your debt, yt I'm almost tempted to turn Bankrupt & because I have no hopes of making compleat payment, to be your debtor for ye whole rather yn a part, & take Sanctuary in a hurry of Business, as I have so long done.” [167] As part payment, Paterson sent Wodrow a lengthy account of the death of Laurence Charteris, the “evangelist” friend of his father, because he had been “an Eye-witness of Things truly astonishing, & wch left Impressions on my Mind wch Nothing will

---

[164] Robert Wodrow to James Paterson, 28 April 1701, Sharp, *Early Letters*, 162. Sibbald in his *Scotia Illustrata* had denied the existence of volcanoes in Scotland, merely mentioning reports from East Lothian and Fife about the existence of spontaneous fires erupting from the ground, similar to the hydrothermal activity at the Phlegraean Fields, *Scotia Illustrata*, pars 1 lib.1, 7.

[165] *Ibid.*, 162-3.

[166] Eastwood museum, shottle 69. The location was well-known locally. A Gaelic poem recorded in the eighteenth-century describes that location as follows: “Dùn Mac Sniachan as was / Harbour of ships of old / Repair of uncouth merchants / in which sub-[terranean] fire / left an overabundance of pumice.” Sìm Innes, “Scottish Enlightenment Inquiry in Gaelic Poetry: ‘Air Fàsachadh Na Gàidhealtachd Albannaich’,” in *The International Companion to Scottish Literature of the Long Eighteenth Century*, ed. Leith Davis and Janet Sorensen (Glasgow: Scottish Literature International, 2021), 237-9.

[167] James Paterson to Robert Wodrow, 14 May 1701, *Wod.Let.Quarto* vol. I, f. 180. For Charteris, see page 162.

ever be able to wear out," noting the Reverend's calmness during the painful death from a kidney stone.[168]

Despite his inability to make the museum more useful to correspondents like Wodrow, it seems that that Paterson's two-year appointment as keeper was extended after its expiry in around May 1701.[169] However, in July, he had to write to Wodrow again with the "old, tho' true Excuse of Unavoidable Business," stating that he had spent over a week in Fife, "but I assure you I had no time to look after any thing relating to Natural History."[170] By the end of the year, he had made up his mind that it was not only his post but also his country which did not afford him the career opportunities he needed. Paterson left Edinburgh for England early in 1702, accompanying John Trotter of Mortonhall on a journey to London.[171] Paterson gave indications to Wodrow and Sibbald that his departure was only temporary, and when Sibbald wrote a letter to Edward Lhuyd at the Ashmolean Museum in February, it seemed that he expected Paterson to return to Edinburgh after only a few months.[172] When informed by Paterson about his journey, Robert Wodrow expressed regret about the departure of his friend, adding concern about Paterson's health due to the undertaking of a winter journey.[173] Feeling reassured by Paterson's claim of a return and by his statement that his journey would make him a better friend and conversationalist, Wodrow wrote that Paterson was "already soe far above my friendship and converse [that] by this, I hope, usefull journey, [you] may altogether get out of my sphere."[174]

Paterson's departure was altogether more permanent than Wodrow had hoped. From London, Paterson went to Wiltshire to become tutor to the son of Gilbert Burnet (1643-1715), then bishop of Salisbury, where he arrived by August 1702.[175] Gilbert Burnet had

---

[168] James Paterson to Robert Wodrow, 14 May 1701, *Wod.Let.Quarto* vol. I, f. 180.
[169] On the 11 September 1702, the town council pay 100 Pounds Scots, to Paterson's mother, Elizabeth Stratton, as a year's salary for her son, which would cover the period ca. May 1701-May 1 1702. *Extracts from the Burgh Records* 1701-1718, 26.
[170] James Paterson to Robert Wodrow, 19 July 1701, *Wod.Let.Quarto* vol. I, f. 185.
[171] Francis Paterson to Robert Wodrow, 6 May 1702, *Wod.Let.Quarto* vol. I, f. 162v. Trotter was a book collector interested chiefly in lexicographical works. He once tried to convince Robert Sibbald to part with a thesaurus he had acquired from Andrew Balfour's library by rolling dice for them. Sibbald declined. M. A. Bera, "'Remarques upon the French Language' by John Trotter, Gentleman," *The Modern Language Review* 45, no. 4 (1950): 518.
[172] Robert Sibbald to Edward Lhuyd, 24 February 1702, Bodl. MS Ashmole 1817a, ff. 458-459 via EMLO.
[173] James Paterson to Robert Wodrow, 10 Jan 1702, *Wod.Let.Quarto* vol. II, f. 7. Robert Wodrow to James Paterson, 12 January 1702, Sharp, *Early Letters,* 186.
[174] Robert Wodrow to James Paterson, 12 January 1702, Sharp, *Early Letters,* 186.
[175] James Paterson to Edward Lhuyd, 15 August 1702, Bodl. MS Ashmole 1817a, ff. 114-115 via EMLO.

been, like Walter Paterson, James Nairn and Laurence Charteris, one of Robert Leighton's evangelists in 1670, and his older brother Thomas Burnet (1638–1704) was a member of the Royal College of Physicians of Edinburgh, where he served as president between 1696 and 1698.[176] It seems that in securing his appointment, Paterson had been able to draw from his family's patronage opportunities. In addition to patronage ties, Gilbert Burnet might also have been attracted to Paterson's experience as keeper and naturalist, as Burnet had written favourably on the role of natural history in education.[177] Paterson accompanied Gilbert Burnet's young son, Thomas (1694–1753), to Oxford in 1703.[178] There, he met Lhuyd with whom he had already re-established contact by May 1702, when he offered the Ashmolean keeper some fossils from his collection which was to follow him to England by sea.[179] However while at Oxford, Paterson's health was in decline, and in December 1703 Lhuyd alerted Wodrow to Paterson's consumptive health.[180] Paterson wrote to Wodrow from Merton College to Wodrow in March 1704, saying that while he saw Lhuyd often, his health would not permit him "to be much in so large & cold a Room as ye Museum is."[181] This final letter did not reach Wodrow directly but was forwarded by Paterson's brother Francis to Wodrow in February 1705, who confirmed that James Paterson had died the previous month.[182]

Paterson's departure meant for Wodrow not only the loss of a friend but in practical terms, the loss of a node of correspondence in Edinburgh. Both James Paterson and Wodrow had hoped that Paterson's brother Francis (b.1683), would be able to take over in this role, "quhich I hope your moyen [power] will engage him to."[183] However, James was sceptical that his brother was able to fulfil this role, not least because he felt that the council supported the museum adequately: "As for ye Rarities, which 'tis like you'll be concern'd about, I did intend to get my Broter to look to ym as my Deputy till my Return; But ye

---

[176] This Thomas Burnet is not to be confused with Thomas Burnet, the English theologian and writer of the *Telluris Theoria Sacra, or Sacred Theory of the Earth* (1681).
[177] In his treatise on education, he called natural history "all the philosophy I would have insisted upon to youth," Gilbert Burnet, *Thoughts on education* (London: D. Wilson, 1761), 71.
[178] This Thomas Burnet would become a judge. David Lemmings "Burnet, Sir Thomas (1694–1753), judge," *Oxford Dictionary of National Biography* [Online], 2004.
[179] James Paterson to Edward Lhuyd, 11 May 1702, Bodl. MS Ashmole 1817a, ff. 112-113 via EMLO.
[180] Edward Lhuyd to Robert Wodrow, 10 Dec 1703. *Wod.Let.Quarto* vol. II, f. 101r.
[181] James Paterson to Robert Wodrow, 24 March 1704, *Wod.Let.Quarto* vol. II, f. 106v.
[182] Francis Paterson to Robert Wodrow, 14 February 1705, *Wod.Let.Quarto* vol. II, f. 109.
[183] Robert Wodrow to James Paterson, 12 January 1702 in Sharp, *Early Letters,* 187. Francis Paterson had been awarded a college bursary by the town council, Edinburgh Town Council Records, 10 Nov 1697.

Patrons of our College make so small Acct of ym, yt they grudge any ye Least Incouragement: However perhaps it may do."[184] Paterson wrote to Edward Lhuyd to the same effect, noting that specimens which Lhuyd was sending to the museum in Edinburgh "shall serve to no great purpose, it being likely hereafter to be quite neglected."[185] James's suspicions were correct, and Francis soon became overwhelmed by the task, writing to Wodrow in May 1602 that he had never collected himself and that there had been no new additions to the Edinburgh collection in over half a year.[186] With the loss of Paterson as keeper, the museum at the Edinburgh town college became therefore defunct as a node of correspondence.

Wodrow continued his correspondence about fossils after Paterson's departure in 1702 with other members of his network, and the physic garden's Intendant James Sutherland seems to already have become Wodrow's most important correspondent regarding natural history by the end of 1701. It was also Sutherland who encouraged Wodrow to continue expanding his knowledge, particularly in botany and offered to teach Wodrow on the subject.[187] Sutherland saw in this a professional opportunity for Wodrow and stated that his friend, Robert Wyllie, had been in conversation with the Glasgow Principal Gilbert Rule about establishing a physic garden at Glasgow. In any case, Sutherland urged to remain in his post as librarian, which "with Keeping a Museum of Rarities might deserve a considerable Sallary."[188] Whether he was discouraged by Paterson's experience of keepership at Edinburgh, or whether he felt that, as the son of a Presbyterian professor of divinity, he wished to follow a clerical calling, Wodrow declined the offer and answered to Sutherland that "I hope if once [plans for a physic garden] were begun, a better hand shall be found to oversee it then I ever can hope to be."[189]

Wodrow's acceptance of the ministry at Eastwood in 1703, procured by the family patron John Maxwell at Pollock, did not mean an abandonment of natural history altogether. As his museum catalogue, drawn up in the year of his move, shows, even after accepting the

---

[184] James Paterson to Robert Wodrow, 10 Jan 1702, *Wod.Let.Quarto* vol. II, f. 7.
[185] Bodl. MS. Ashmole 1817a ff. 114-115.
[186] Francis Paterson to Robert Wodrow, 6 May 1702, *Wod.Let.Quarto* vol. I, f. 162.
[187] James Sutherland to Robert Wodrow, 1 Dec 1701, *Wod.Let.Quarto* vol. I, f. 199.
[188] *Ibid.*
[189] Robert Wodrow to James Sutherland, 29 December 1701, Sharp, *Early Letters*, 187.

ministry at Eastwood, Wodrow continued his interest in natural history, although the correspondence network which he had built up during his time as keeper at Glasgow was not sustained. In 1706, he wrote to his fossil correspondent Lachlan Campbell, minister at Kintyre, asking him whether he had heard anything from Edinburgh or from Lhuyd in Oxford, and also whether he could spare anything for his collection, saying that he felt estranged from the Republic of Letters.[190] However, it was not his rural location, but rather his interests which had shifted, and Wodrow was now "upon another collection that seems more proper for my presentt imployment, and that is of the curiositys, if I may say soe, or rather remarkables of Providence," which could lead to his collection of *Analecta*.[191] As indicated by the letter, his connection to Lhuyd had also severed. In May 1709, Lhuyd wrote a letter to Wodrow, addressed to the Glasgow library and enquiring whether he had "bid adieu to such studies," in natural history.[192] Wodrow replied in August that, even though his pastoral charge would not allow him much time to follow "subterranean studys," his interest was "just the same, as when I saw you, or rather greater; and I take it to be one of the Best of Diversions […] from more seriouse work, and in it self a great deuty to yeu and admire my Maker in his works as weel as his word." Wodrow also asked Lhuyd for any specimens he could spare for Wodrow to add to his 500-600 "species," of natural history.[193] What Lhuyd thought of this gentle relegation of natural history by Wodrow is not recorded.

The whereabouts of Wodrow's collection after his death are unclear. He did not fulfil his promise of leaving the collection to the Glasgow university library upon departure of his librarianship, and it is unlikely that it was ever merged with Hunter's collection.[194] The 1791 account of Wodrow's Eastwood parish indicates that Wodrow's collection remained as a museum in the small parish and that Wodrow also left behind a separate collection of coins, but is ambiguous as to whether that collection was still extant at the time of that report.[195]

The dissolution of Wodrow's network did not, however, mean that interest in fossils ceased north of the border. In 1706 William Nicolson wrote to Lhuyd from Carlisle that he

---

[190] Robert Wodrow to Lachlan Campbell, 4 February 1706, Sharp, *Early Letters*, 283-6.
[191] Robert Wodrow to Lachlan Campbell, 4 February 1706, Sharp, *Early Letters*, 285. McGill and Raffe, "The Uses of Providence in Early Modern Scotland," 169.
[192] Edward Lhuyd to Robert Wodrow, 15 May 1709, *Wod.Let.Quarto* vol. II, ff. 119-120.
[193] Robert Wodrow to Edward Lhuyd, 26 August 1709, *The Correspondence of the Rev. Robert Wodrow,* 33.
[194] That idea was put forward by Jeff J. Liston, "Pulling Teeth : 2 - Hunter's Tusk, Wodrow's Tooth and the Bite of the Lepus," *Geological Curator* 9, no. 8 (2012), 423.
[195] Sinclair, *The Statistical Account of Scotland*, 211.

had received a letter from members of a Society for the Propagation of Natural Knowledge at Edinburgh, which met weekly on Mondays, as they claimed in "imitation of those at Gresham College," the home of the Royal Society in London.[196] The society, according to Nicolson, had started to send the titles of their meetings abroad asking "Charitable and Well-Disposed Virtuosi to give 'em somewhat of a helping hand."[197] There is no other confirmation of this society in the historiography, but Nicolson gave Lhuyd the titles of the topics of some of these meetings that indicate that Sibbald might have been involved in it, although Nicolson does not mention Sibbald's name.[198] Some of the lectures dealt with matters later published in Sibbald's *Miscellanea eruditæ antiquitatis*, and the last lecture topic on Nicolson's list was "On Musea, or Cabinets of Curiosities."[199] Irrespective of Sibbald's involvement, Nicolson made it clear to Lhuyd that the society was deficient in one particular aspect of natural history: "They chiefly complain (to me, at least) of their wanting a sufficient Collection of Metals, Minerals and Fossils."[200]

Short-lived as it was, Wodrow's fossil network reveals that, despite its neglect in the historiography, Scots were actively engaged in contemporary practices and theories on figured stones. Although participants in the network were largely not trained in matters of natural history, they were taken seriously enough by naturalists like Lhuyd who sought to expand contacts and practices of fossil generation, not only for the benefit of their own collection but also to counter rival ideas. However, while rules of conduct and terminology were adapted from other naturalists, this was not simply a feeding of an English centre from the Scottish periphery. Collectors north of the border went lithoscoping without becoming paid lithoscopists. Rather they saw themselves as independent actors, for whom fossils were a means to stimulate correspondence, social bonds and friendship. The same infrastructural challenges at play elsewhere meant that similar solutions were found for the

---

[196] William Nicolson to Edward Lhwyd, 25 May 1706, Bodl. MS Ashmole 1816, ff. 549-550 via EMLO. [the EMLO transcription reads erroneously "in Invitation of those at Gresham College"].
[197] William Nicolson to Edward Lhwyd, 25 May 1706, Bodl. MS Ashmole 1816, f. 550 via EMLO.
[198] Emerson, who compiled a list of these types of societies, in "Sir Robert Sibbald, Kt," seems to be unaware of Nicolson's letter, but notes for instance that the surgeon Thomas Kincaid, acquaintance of Sibbald's and John Adair's, was involved in a "Nationall Society," which might have been this club. Sibbald also recorded the existence of an "Edinburgh Club for the Improvement of Sciences and Arts," in NLS Adv. MS 33.5.16, 50.
[199] E.g. a talk on the *chara* root (which Sibbald identified with the Scottish *karemile*) and a talk on tritons and mermaids, which correspond to Sibbald, *Miscellanea eruditæ antiquitatis*, 16-26 and 43-50.
[200] William Nicolson to Edward Lhwyd, 25 May 1706, Bodl. MS Ashmole 1816, f. 550 via EMLO.

transport and identification of specimens, and the same rules of civility and conduct governed correspondence of untrained collectors like Wodrow and Paterson, as they did of those who had benefitted from training in natural history through their medical studies like Lister and Sibbald. That natural history could provide a career path for those who had connections but no funds to acquire such training is shown by the conscious attempts of James Paterson to make himself useful in his institutional role as museum keeper. Institutional regulations, lack of interest and investment by the town council and university meant that Paterson sought other patronage opportunities and that the museum functioned little better as a node of correspondence than it did as a didactic resource. And while Sibbald was engaged in the fossil network, his interests were mostly with living plants and animals, and he eschewed attempting to resolve the ambiguous nature of figured stones.

CONCLUSION

In his 1771 *Report on the Hebrides*, the future professor of natural history at Edinburgh, John Walker, noted that near Loch Hourn, close to the Isle of Skye, there could be found a variety of "amiantus," or asbestos, "in vast quantities."[1] As Walker knew, Andrew Balfour and Robert Sibbald had specimens of this type of mineral in their collections. Walker collected his "amiantus" as part of a survey of the Highlands in 1764, commissioned by the Board of the Annexed Estates, during which he was tasked to find out what natural productions the country afforded, and how these might be usefully integrated into the Scottish economy. Walker noted that the asbestos might, finely ground, be useful in the production of chinaware.[2] However, his judgement about the nature of the "amiantus" differed from that of Balfour and Sibbald. Walker noted that "both of them acquiesced in the Traditional Opinion of the Natives of the Country, who all suppose it to be petrified Holly […] it has indeed a most exact Resemblance of petrified Wood, in its Colour and Structure, yet upon a narrow View of its Fibres, it is easy to discern, that they never have belonged to any Plant."[3]

Although they differed in their judgement of the nature of asbestos, Walker, Sibbald and Balfour conducted what they called natural history. In their shared view, natural history was the collection of facts of nature, by direct and indirect observation, and the making of judgements based on these facts about the relationship of one part of nature to another. Natural knowledge also relied on compiling different accounts of natural particulars and judging which of these were credible and which were not. The aim was to provide a comprehensive record of animals, plants and underground productions of a geographically defined unit, such as Scotland, and an understanding of the relationship between the inhabitants of that unit and the divinely created natural world on which they depended.

---

[1] John Walker, *The Rev. Dr. John Walker's Report on the Hebrides of 1764 and 1771*, Margaret M. MacKay, ed. (Edinburgh: John Donald, 1980), 219.

[2] Walker, *Report on the Hebrides,* 219.

[3] *Ibid*. Sibbald's entry in his *Auctarium* does not make the connection between *amianthus* and petrified wood, but he did record in his commonplace book a letter by a Mr Wilson, written originally to him in 1699 and published subsequently in the *Philosophical Transactions*, who noted that he had found asbestos when searching for pieces of petrified wood in Auchindoir, Aberdeenshire. I was not able to trace the precise basis for Walker's claim on Sibbald and Balfour. Sibbald, *Auctarium*, 39-40; NLS Adv. MS.33.5.19, ff. 201, 223-5; *Philosophical Transactions*, vol. XXII (1701): 1004-6.

Because this commitment to observational virtues seems so little changed in the century that elapsed between the careers of Sibbald and Walker, it would seem reasonable to equate the natural history of the later eighteenth century to that of the early Enlightenment *virtuosi*.

However, by examining the medical, humanist and natural philosophical strands that underpinned the thoughts of naturalists like Sibbald, and by giving an account of the complex interactions between collectors, museums, institutions and collecting networks in Scotland at the turn of the eighteenth century, this thesis has argued for important differences between the early and later Enlightenment in matters of natural history. One of the most consequential of these was the deference to a humanist Renaissance tradition in the earlier period. Sibbald saw himself not primarily as an innovator but thought of himself as following long-established virtues and practices of natural history, which he applied to his home country. In the institutions that Sibbald and his fellow *virtuosi* established, newer methods of observation and sociable knowledge exchange sat alongside a commitment to Galenic-Hippocratic tradition, scepticism of radical change, and an overall suspicion of theory. At the same time, contemporary criticism of Sibbald's merging of "the Best of the Antients and Moderns" helped reshape the natural historical project with long-lasting consequences. Consequently, the natural philosophical foundations of the *Scotia Illustrata* and Sibbald's method of enquiry included much which would have seemed outdated and alien to Walker who, as collector and compiler of Sibbald's manuscripts, was intimately familiar with his work. This makes Sibbald – missing from very few accounts of early modern Scottish intellectual history – a distinctive figure, rather than a reliable litmus test for Enlightenment thought when it came to natural history.

Our understanding of natural history in early Enlightenment Scotland relies on an analysis of a selection of sources, some of which have been underappreciated in the previous historiography. The main sources used in this thesis have been letters between naturalists, catalogues of collections and written works of natural history.

The digitalisation of archives of correspondence has made it easier to find and highlight connections between historical actors and to identify members of layered networks of correspondence, although it is important to note that many of the Scottish sources have not been digitised yet. Analysis of these correspondence networks reveals the rules, intellectual

concerns, language and sociability which supported natural historical enquiries. The links between Sibbald and his English correspondents, particularly Hans Sloane and Martin Lister, which emerge from this correspondence have long been recognised. However, what has been underappreciated so far are the networks of collectors that, while they made use of these links, operated largely independently from the better-studied centres of exchange and collections like Oxford or the Royal Society in London. Wodrow and his fellow lithoscopists have received little attention from the historiography of fossil collecting, because they did not publish works of natural history, and because in their correspondence natural history was only one of many topics of conversation. Infrastructural challenges and lack of institutional support meant that their collections were abandoned and dispersed, their careers interrupted, and their collecting dismissed in later accounts as outcrops of youthful curiosity. And yet, these correspondence networks emphasise that natural history was a sociable activity which relied on joint field excursions and circulation of specimens. It is important to note that while the collectors in Wodrow's circle sought the taxonomic expertise of trained naturalists like Sibbald and were encouraged by Edward Lhuyd in the search for local *fossilia*, much of their knowledge was "unlearned," rather than being acquired through medical professional training. Still, a joint interest in "subterranean inhabitants" cemented independent social bonds which catalysed knowledge exchange about other matters. The role of specimen exchange within the formal epistolary culture of the Republic of Letters has only begun to be appreciated, and despite the geographically peripheral nature of the Scottish network, the engagement of its members with competing fossil theories shows that the reach of scientific debates was deeper than the previous literature has suggested.

Letters that illuminate networks of exchange show only one part of natural historical conduct and represent perhaps the part most readily intelligible to us. These have to be complemented by analysing the working tools of the naturalist: the museum catalogue and the natural historical treatise. Both of these types of sources evince the collecting of material evidence and the accumulation of facts of natural history, but both catalogues and treatises offer interpretational challenges, as shown in this thesis.

As a genre, the museum catalogue performs a diversity of functions and can present, for instance, an inventoried list and finding aid like Wodrow's *Eastwood Musaeum*, or an attempt to establish a didactic taxonomy, like Sibbald's *Auctarium*. The catalogue was thus

not only a snapshot of a collection in time but also a reflection of the specific concerns of the cataloguer at a particular historical moment. These concerns are rarely readily apparent and have to be deduced from the context in which the catalogue was produced. They often turn out to be as unstable and mutable as the collections themselves and this mutability reflects the uncertainty over the role of the museum for the early modern Scottish naturalists. The various attempts by Sibbald and others to describe Andrew Balfour's collection show that there was no clear vision of what a collection should be, who should be responsible for its keeping, how it should be presented spatially, or how text and specimen might usefully interact to produce or teach natural knowledge. For the historian, however, collection catalogues are indispensable in identifying the types of natural particulars which interested the early modern collector-naturalist. They also show geographical emphases and social links which do not emerge from the extant naturalist correspondence alone. In the Scottish case, they reveal that much of Sibbald's and Wodrow's collecting of specimens was done locally, and they emphasise that exotic foreign specimens made up only a small part of the museum collection as a whole. The named and unnamed entries of contributors in these catalogues emphasise that natural history was practised among ministers, lawyers, gardeners and students, not to mention the male and female invisible collectors among the fishermen, miners, health practitioners and Highland farmers who possessed the knowledge about local nature on which the naturalists' accounts and their collections depended.

The third set of sources which this thesis has considered – after correspondence and collection catalogues – are treatises of natural history, foremost Sibbald's *Scotia Illustrata*. It is perhaps here that we see the strongest discontinuities between the natural histories of Sibbald and Walker. Sibbald's natural history was written in the scholarly Latin style taught by the grammarians at the Scottish universities and refined by the self-appointed torchbearers of medical humanism in Leiden, Paris, Montpellier or Padua. As Sibbald's case shows, the register of these Latin writings could be quite different from those written in the vernacular, and it is here that we find the clearest expression of the direction of natural historical enquiry and the moral philosophies that were the motives for its conduct. In Sibbald's body of Latin scholarship, ancient natural philosophical ideas and medical theories were complemented, not contradicted, by modern techniques of observation, investigation and recording. In Latin tracts like the Pitcairnian *De Legibus Historiae Naturalis* or Sibbald's *Vindiciae* we can also follow the rhetorical battles that were fought when these ideas were

challenged from within the learned medical community during the so-called Edinburgh fever dispute. Previous judgement of these tracts has understood them mainly as salvos in politically or religiously motivated squabbles over personalities or institutional privilege. The value of the *Vindiciae* or *De Legibus* for the historian of natural history, however, lies in the fact that they sharpen our sense of differing virtues and practices of observation in natural history. And while the crude laws of natural history that were posited by Sibbald's critics were hardly the threat to natural history that Sibbald made them out to be, the *Prodromo-mastiges* nevertheless widened the cracks that showed up in that part of Sibbald's scholarship which depended on second-hand information and an eclectic selection of facts.

Like any account of intellectual change, the interpretation of these sources relies on placing them in their biographical context. Particularly in Sibbald's case, biography illuminates intellectual pedigree and informs our understanding of natural philosophical shifts in response to crisis. Sibbald's textual scholarship followed a tradition that emerged among the naturalists and collectors of sixteenth-century Italy, and among the humanist antiquarians and physicians who defined the early years of Leiden as a centre of learning in the generation that followed Lipsius, Scaliger and Saumaise. As seen, men like Franciscus Sylvius, Johannes van Horne and Guy Patin, were at least as influential on Sibbald's work as were the Royal Society figures Martin Lister, Robert Hooke, John Ray and Hans Sloane.

It was from these continental humanists, as well as from his contact with the Edinburgh principal Robert Leighton, that Sibbald was encouraged to adopt a range of Stoic moral and natural philosophical positions, that remained prominent in his writings until the late 1690s. Seneca's *Naturales Quaestiones* gave Sibbald a moral compass and concrete ideas about the workings of the cosmos that stressed the role of indigenous medicine and defined the relationship between humans and the natural world. Sibbald's ideas of natural history were shaped by Stoic anxieties about luxury and travel, as well as Stoic notions of restrained consumption and contemplative knowledge. The concept of *autarkeia*, borrowed from Hellenistic moral philosophy and adapted to a medical context by continental humanist physicians and apothecaries, influenced Sibbald's work. Because Sibbald's *autarkeia* was naturally granted, Scottish self-sufficiency could be realised without the importation of foreign medicines and foodstuffs and without the need for extensive improvement. The prevalence of ideas like these in Sibbald's writings should caution against seeing Sibbald

from the outset as an unalloyed Baconian moderniser in the way he has been portrayed in historiographical accounts that emphasise the practical epistemological nature of the early Scottish Enlightenment.[4] While Sibbald did emphasise useful natural knowledge, Sibbald's natural history was a contemplative exercise, deemed morally superior to considerations of human affairs, and its place was the study room as much as the field. Hippocratic and Stoic considerations of microcosmic and macrocosmic relationships, and of natural processes that affected the natural world and the human body equally not only served to improve the understanding of disease and human health but also emphasised for Sibbald the divine mysteries of the cosmic order.

The period immediately following the Revolution of 1688/9 saw Sibbald's ideas under increased strain in Scotland from economic and politico-religious realities. Sibbald, having already lost face due to his temporary conversion to Catholicism, was criticised by *novatores* like Pitcairne who aimed to exploit institutional rivalries between medics, surgeons and the Edinburgh town college, inciting intellectual factionalism. The Pitcairnians not only mocked Sibbald's fondness for Seneca but also questioned the direction of his natural historical project. Sibbald's eclecticism left him open to criticism by these *novatores*, who claimed that Sibbald's lack of commitment to modern theories was leading to a faulty scholarship that trusted too much and investigated too little. Notions of medical and dietary *autarkeia* were difficult to sustain at a time when Scotland suffered from famine and when political pressure grew for attempts at establishing colonial ventures. In response, Sibbald shifted his intellectual and philosophical priorities away from overtly Stoic ideas and turned his attention more decisively towards the kind of economic improvement schemes that seem more characteristic of a Baconian project. Sibbald's unpublished improvement tracts and his attempts at building the Scottish equivalent of the Royal Society should be seen as a response to a personal and economic crisis. However, Sibbald continued to emphasise the superiority of indigenous medicine over imported remedies, remained committed to Lister's approach of placing ancient and modern knowledge side-by-side, and increasingly turned away from public affairs and towards natural history in a way that suggests that Stoic ideas continued to shape Sibbald's personal and professional conduct. The complex relationship between Hippocratic-Galenic medical ideas, Stoic moral and natural philosophy coupled

---

[4] See Section 1.2.

with an emphasis on useful natural knowledge should lead us to a reconsideration not only of Sibbald's "naïve Empiricism," but should also prompt us to consider that Baconian ideas formed only one part of the complex intellectual makeup of Sibbald and his circle of *virtuosi*.[5]

This thesis has shown that our image of the early Scottish Enlightenment is further complicated by considering the activity deemed at the heart of the natural historical project, and one closely associated with the historiographical concept of Baconian science: the collecting of facts. It is here that we see an emergent divide in the evaluation of textual and material evidence in part due to the crisis of the 1690s which threatened some of the foundations of the natural historical project. Textual and material evidence were subjected to scrutiny by those who claimed to emancipate medical practice from undue philosophical influence. For the former, the methodologies used by the natural historian resembled those practised in civil history and antiquarianism. In his works which pertained to civil and natural history, like his *Scotia Illustrata* or his county histories, Sibbald relied to a great extent on second-hand information gathered from surveys and informants. Additionally, he made use of the increasing documentary material available to him through his antiquarian work. Sibbald's project aimed to define Scotland as a historical and geographic unit and built on the work of antiquarians like James Balfour and sixteenth- and early seventeenth-century Scottish chroniclers and geographers. Critics of this approach not only questioned the reliability of textual sources but also accused the compiler of facts of undue selectivity. This type of criticism led to the controversy surrounding the publication of James Dalrymple's *Collections Concerning the Scottish History* (1705), in which critics accused Dalrymple of a selective presentation of facts to counter notions of the subservience of the Scottish church to English episcopacy.[6] The same criticism of overt selectivity in the collecting of facts of nature was levelled by the writer of the *De Legibus* against Sibbald, claiming in the fourth law that Sibbald had constructed the case for Scottish *autarkeia* from natural history without having the factual basis to do so. In response, Sibbald's counter-claim of theoretical agnosticism could only provide lukewarm credibility. More convincing was his turn towards

[5] See page 13.
[6] Williams, *First Scottish Enlightenment*, 105.

the collecting of material evidence in the form of specimens of natural history and his attempts at establishing private and institutional museum collections.

In the historiography of the early Scottish Enlightenment, natural history collections are barely mentioned, even though the abovementioned correspondence and collection catalogues attest to the richness of the Scottish collecting culture. To be certain, Sibbald anchored his ideas about the usefulness of collecting and museums firmly in tradition. For Sibbald, the museum was the culmination of a didactic and observational methodology that was born in sixteenth-century Italy and had its Scottish antecedents in the activities of the Balfour brothers, James and Andrew. However, Sibbald aimed to transform the courtly and cosmopolitan collection which relied on eye-catching foreign rarities into the *Theatrum Mundi* – or rather *Theatrum Scotiae* – which showed the whole range of Scottish nature, from the simple to the complex. Sibbald's collection of specimens was not only a counter to claims of factual inaccuracy but also reflected his desire to contemplate the inner workings of nature and discovery of the natural order in the closed museum space. In this, as elsewhere, Sibbald aimed to create a bridge between new methodologies and ancient forms of understanding nature. The institutional and personal contingencies of Sibbald's project and the central role of the curator as a knowledge broker and communication node have been highlighted in this thesis and they emphasise biography as a driver of intellectual change. The fate of the Sibbaldian and Balfourian collections after Paterson's departure shows the fragility, both conceptually and materially, of the museum as a place of knowledge production, even when it is bound to institutional settings like the town college or the Royal College of Physicians.

These discontinuities emphasise further that the world of natural history that Walker inhabited was different from Sibbald's world. Neither Sibbald's *Scotia Illustrata* project – always conceived as a forerunner – nor his *Auctarium* collection was continued. Like most schemes of knowledge production, they were bound to a personal vision of understanding the world and represented a fragile construct of learning that could not survive generational change unscathed. Because Sibbald's ideas of natural history were inextricably linked to his medical practice and his Stoic moral philosophy, they were deemed less useful by those men of the later Scottish Enlightenment for whom natural history represented a more distinct and well-defined discipline.

This thesis has only shown a small part of their naturalist activity and many aspects of natural history in Scotland remain little explored. For instance, an examination of the links between the botanical activities of Andrew Balfour and Patrick Murray of Livingstone, and between the gardens in Edinburgh and Paris could help probe the intellectual connections between Scottish and continental medical and natural knowledge. Furthermore, the activities of invisible collectors, female collectors, the role of "unlearned" knowledge of the natural world and the complex relationship between Highland and Lowland natural history, all of which play a major role in Sibbald's improvement works, have only been touched upon in this thesis. Finally, and perhaps most importantly, the collection catalogues at Edinburgh and Glasgow show directly and indirectly substantial links to emergent Scottish and English colonial projects and exploitative practices in the Atlantic and Pacific. How much these practices were shaped by the ideas that emerged among the seventeenth-century Scottish *virtuosi* and the institutions that they founded, which were increasingly concerned with global rather than local geographies, requires further historical interrogation.

BIBLIOGRAPHY

Manuscript Sources

Bodleian Library (via Early Modern Letters Online)

MS Ashmole 1816
MS Ashmole 1817a
MS Ashmole 1829
MS Ballard 24
MS Carte 269
MS Lister 36
MS Lister 37
MS Smith 51

The British Library (via Early Modern Letters Online)

Sloane MS 4063

The City of Edinburgh Archives

GB236/SL1/1 [Edinburgh town council minutes]
Mc Leod's Bundles C0016R, item 62 ["A Catalogue of the Present Contents of the Museum of the University of Edinr" John Walker, 22 March 1780]

Edinburgh University Library

MS Dc 1.18 [Papers of John Walker - papers in natural history, 1780s]
MS Dc 1.59 [Papers of John Walker - papers in geography, science, and letters, 1743-1783]
MS Dc 8.35 [Letters from Robert Sibbald to Hans Sloane, 1696–1711, transcripts]
MS La III 535 [Sibbald's speech on the opening of the town college museum]
MS Gen 1801/6 ["Musaeum Balfourianum Or A Catalogue of the Rarities Which were collected by Sr Andrew Balfour; And bought from his Heirs, by the Town Council of Edinburgh For the Use & Ornament of their Colledge"]

Glasgow University Library

Mu7-i.41 [Copy of Sibbald's *Auctarium* belonging to Robert Wodrow]

The National Library of Scotland

Adv. MS 6.1.14 [Drawings for the *Scotia Illustrata* and other works]
Adv. MS 15.1.5 [Robert Sibbald "The Description of the Particular Counties of This North Part of Britain"]
Adv. MS 22.2.10 [Journal of Thomas Kincaid, 1703-1707]
Adv. MS 23.5.10 [Patrick Murray's notes of Denis Joncquet lectures at Paris]

Adv. MS 33.5.1 ["The Life of Sir Robert Sibbald M.D. Founder of the Royal College of Physicians at Edinburgh Written with His Own Hand," Transcript]
Adv. MS 33.7.9. [Compilations on precious stones by James Balfour]
Adv. MS 33.3.16 [Sibbald's discourses on improvement and marine life]
Adv. MS 33.5.19 [Sibbald's commonplace book "Ane Essay Relating to the Natural History of Scotland by Way of Supplement to the Prodromus Naturalis Historae Scotae Published Anno 1684"]
MS 2257 [Satirical poems and Sibbald's letters on his conversion to Catholicism]
Wod.Let.Quarto [Wodrow's correspondents in quarto letters]

The National Records of Scotland

GD 205/34/4 [Bennet of Grubet papers]

The Royal College of Physicians of Edinburgh Archive

College meeting minutes
DEP/ALJ/1 [Plates for proposed volume on marine life; drawings by Sibbald, John Alexander and others]
DEP/BAA [Andrew Balfour's "Catalog of Plants and Herbs Whiche I Have Seen"]
DEP/POR/3/8/3 [Minutes of college regarding Sir Robert Sibbald's collection of curiosities and his portrait]

Royal Society Library (via Early Modern Letters Online)

EL/S2/10
EL/P1/102

Strathclyde University Library

MS Anderson MS 10 (OA 5/1/1) [Robert Wodrow's "Eastwood Musaeum" transcript by John Anderson]

Trinity College Dublin (via Early Modern Letters Online)

MS 888/2

Printed Primary Sources

Antonius Kerkoëtius Aremoricus [=Denis Pétau]. *Animadversorum Liber Ad Claudii Salmasii Notas in Tertullianum de Pallio*. Paris: Yvon Halec, 1622.

Aristotle. *The Nicomachean Ethics*. Translated by H Rackham. LCL 73. Cambridge, MA: Harvard University Press, 1934.

Armet, Helen, ed. *Extracts from the Records of the Burgh of Edinburgh*. Edinburgh: Printed for the Scottish Burgh Records Society, 1962.

Balfour, Andrew. *Bibliotheca Balfouriana, sive catalogus librorum, In quavis Linguâ & Facultate Insignium Illustris Viri D. Andreae Balfourii M.D. & Equitis Aurati*. Edinburgh: Heirs of Andrew Anderson, 1695.

———. *Letters Writen to a Friend; Containing Excellent Directions and Advices for Travelling Thro' France and Italy*. Edinburgh: sn, 1700.

Balfour, Sir James. *The Historical Works of Sir James Balfour*. Edited by James Haig. Vol. 1. Edinburgh: W. Aitchison, 1824.

Beverwijck, Johan van. *Autarkeia Bataviæ, sive Introductio ad medicinam indigenam*. Leiden: J. Maire, 1644.

Boyle, Robert. "General Heads for a Natural History of a Countrey, Great or Small, Imparted Likewise by Mr. Boyle." *Philosophical Transactions of the Royal Society of London* 1, no. 11 (1666): 186–89.

Burnet, Gilbert. *Thoughts on Education. By the Late Bishop Burnet. Now First Printed from an Original Manuscript*. London: Printed for D. Wilson, 1761.

Champier, Symphorien. *Hortus gallicus pro Gallis in Gallia scriptus...* Lyon: Melchior and Gaspar Trechsel, 1533.

Charleton, Walter. *Epicurus' Morals, Collected Partly out of His Own Greek Text, in Diogenes Laertius, and Partly out of the Rhapsodies of Marcus Antoninus, Plutarch, Cicero, & Seneca. ; And Faithfully Englished*. London, England: H.Herringman, 1670.

Constantin, Antoine. *Brief traicté de la pharmacie prouinciale et familiere: suiuant laquelle la medecine peut estre faicte des remedes qui se treuuent en chasque prouince, etc*. Lyon: Tibaud Ancelin, 1597.

Davison, Thomas. *The Fall of Angels Laid Open*. London: R.Clavell, 1684.

Defoe, Daniel. *A Tour through the Island of Great Britain Divided into Circuits of Journies*. Edited by Samuel Richardson. 8th Edition. Vol. IV. London: W. Strahan, et al., 1778.

Du Hamel, Jean Baptiste. *Philosophia vetus et nova ad usum scholae accommodata in Regia Burgundia ... pertractata*. Paris: Étienne Michallet, 1678.

Francisco Franco [=Claude Saumaise]. *Confutatio Animadversorum Antonii Cercoetii ad Claudii Salmasii notas in Tertullianum de pallio*. Middelburg: Simon Moulert, 1623.

Graziani, Antonio Maria. *De Casibus virorum illustrium*. Paris: Antoine Cellier, 1680.

Grew, Nehemiah. *Musæum Regalis Societatis, or, A Catalogue and Description of the Natural and Artificial Rarities Belonging to the Royal Society and Preserved at Gresham Colledge Made by Nehemiah Grew ; Whereunto Is Subjoyned The Comparative Anatomy of Stomachs and Guts by the Same Author*. London: W. Rawlins, 1681.

Gunther, Robert T. *Early Science in Oxford / Vol.14, Life and Letters of Edward Lhwyd*. Oxford: Printed for the subscribers, 1945.

Hepburn, George. *Tarrugo Unmasked, or an Answer to a Late Pamphlet Intituled, Apollo Mathematicus by George Hepburn, M.D., and Member of the Colledge of Phisicians at Edinburgh To Which Is Added by Doctor Pitcairne, The Theory of the Internal Diseases of the Eye Demonstrated Mathematically*. [Edinburgh?], 1695.

Innes, Cosmo. *Munimenta Alme Universitatis Glasguensis*. Vol. 3. Glasgow: Maitland Club, 1854.

Leighton, Robert. *Prælectiones Theologicæ, in Auditorio publico Academiæ Edinburgenæ ... habitæ, una cum Parænesibus in Comitiis Academicis ad Gradus Magistralis in Artibus Candidatos. Quibus adjiciuntur Meditationes Ethicocriticæ in psalmos iv., xxii., cxxx*. Edited by James Fall. London: Sam Keble, 1693.

———. *The Whole Works (as yet Recovered) of the Most Reverend Father in God Robert Leighton, D.D... Lectures and Addresses Delivered in Latin Before the University of Edinburgh*. Translated by William West. Vol. 6. London: Longmans, Green, and Co., 1870.

Lister, Martin. *A Journey to Paris in the Year 1698*. London: Jacob Tonson, 1699.

———. *Conchyliorum bivalvium utriusque aquae exercitatio anatomica tertia huic accedit Dissertatio medicinalis de calculo humano*. London, 1696.

Mackaile, Matthew. *Moffet-well, or, A topographico-spagyricall description of the minerall wells, at Moffet in Annandale of Scotland translated, and much enlarged, by the author Matthew Mackaile; as also, The oyly-well, or, A topographico-spagyricall description of the oyly-well, at St. Catharines Chappel in the paroch of Libberton; to these is subjoyned, A character of Mr. Culpeper and his writings, by the same author*. Edinburgh: Robert Brown, 1664.

———. *Terrae prodromus theoricus. Containing, a short account of, Moses philosophizans. Or, The old (yet new) and true, scripture theory of the earth. [microform] In two parts. Or, a new system, of the order and gradation, in the world's creation, by way of animadversions, upon Mr. Thomas Burnet's Thoery [sic], of his imaginary earth. &c. By Matthew Mackaile, chirurgo-medicine*. Edinburgh: Iohn Forbes, 1691.

———. *The diversitie of salts and spirits mantained [sic] or, The imaginary volatility of some salts and non-entity of the alcali ... by an onely lamp-furnace resolved into real improbability. By way of animadversions upon Dr. D[aniel] C[oxe] his 3 papers, communicated to the R[oyal] S[ociety] and insert in the 9. vol. of the P[hilosophical] T[ransactions] Together, with a new system, of the order and gradation, in the worlds creation. As also Scurvie alchymie discovered*. Aberdeen: Iohn Forbes, 1683.

Marggraf, Christian. *Materia medica contracta, exhibens simplicia & composita medicamenta officinalia*. Leiden: Aernout Doude, 1674.

Mitchell, Alexander, ed. *Geographical Collections Relating to Scotland Made by Walter Macfarlane*. Vol. 3. Edinburgh: Edinburgh University Press for the Scottish History Society, 1908.

Molhuysen, Philipp Christiaan. *Bronnen Tot de Geschiedenis Der Leidsche Universiteit 1574-1811*. Vol. 3. ’S-Gravenhage: M. Nijhoff, 1918.

Newton, Isaac. *The Principia: The Authoritative Translation and Guide: Mathematical Principles of Natural Philosophy*. Translated by I. Bernhard Cohen and Anne Whitman. University of California Press, 2016.

Paterson, Ninian. *Epigrammatum libri octo: Cum aliquot Psalmorum paraphrasi poetica*. Edinburgh: Thomas Brown & James Glen, 1678.

Petiver, James. *Advertisement*. London: S. Smith & B. Walford, 1698.

Philosophical Transactions of the Royal Society.

Pitcairne, Archibald. *Dissertatio de curatione febrium quae per evacuationes instituitur*. Edinburgh: George Mosman, 1695.

———. *Dissertatio, de legibus historiae naturalis*. Edinburgh: John Reid, 1696.

———. *The Best of Our Owne: Letters of Archibald Pitcairne 1652-1713*. Edited by W. T. Johnston. Edinburgh: Saorsa Books, 1979.

———. *The Latin Poems*. Translated by John MacQueen and Winnifred MacQueen. Tempe, AZ: Uitgeverij Van Gorcum, 2009.

———. *The Whole Works of Dr. Archibald Pitcairn: Published by Himself : Wherein Are Discovered, the True Foundation and Prinicples of the Art of Physic : With Cases and Observations Upon Most Distempers and Medicine*. Translated by George Sewell and John Theophilus Desaguliers. London: E. Curll, J. Pemberton, and W. and J. Innys, 1727.

Quiccheberg, Samuel*. The First Treatise on Museums: Samuel Quiccheberg’s Inscriptiones 1565*. Translated by Mark A. Meadow and Bruce Robertson. Los Angeles: Getty Research Institute, 2013.

Rieu, Willem Nikilaas Du. *Album Studiosorum Academiae Lugduno Batavae MDLXXV-MDCCCLXXV*. Leiden: Martinus Nijhoff, 1875.

Seneca the Younger. *Epistles*. Translated by Richard M. Gummere. LCL 75. Cambridge, MA: Harvard University Press, 1917.

———. *Natural Questions*. LCL 450. Cambridge, MA: Harvard University Press, 1971.

———. *Tragedies, Volume I*. Translated by John Fitch. LCL 62. Cambridge, MA: Harvard University Press, 2018.

Sibbald, Robert. *Bibliotheca Sibbaldiana; or, a Catalogue of Curious and Valuable Books; with a Curious Collection of Historical and Other Manuscripts; Being the Library of the Late Sir Robert Sibbald of Kipps; to Be Sold by Auction on the 5th of February 1723*. Edinburgh, 1722.

———. *Disputatio de variis tabis speciebus*. Leiden: Elsevier, 1661.

———. *Historical Inquiries: Concerning the Roman Monuments and Antiquities in the North Part of Britain Called Scotland*. Edinburgh: James Watson, 1707.

———. *Memoria Balfouriana, sive historia rerum, pro literis promovendis, gestarum a clarissimis fratribus*. Edinburgh: Heirs of Andrew Anderson, 1699.

———. *Miscellanea eruditæ antiquitatis quæ ad borealem Britanniæ majoris partem pertinent ; in quibus loci quidam historicorum Romanorum, variaque monumenta antiqua illustrantur*. Edinburgh: Andrew Simpson, 1710.

———. *Nuncius Scoto-Britannus, sive, Admonitio de Atlante Scotico seu descriptione Scotiae antiquae et modernae*. Edinburgh: David Lindsay, M. James Kniblo, Josua Solingen & Johann Colmari, 1683.

———. *Phalainologia nova; sive observationes de rarioribus quibusdam balaenis in Scotiae littus nuper ejectis*. Edinburgh: John Reid, 1692.

———. *Provision for the Poor in Time of Dearth and Scarcity*. Edinburgh: James Watson, 1699.

———. *Scotia illustrata sive, Prodromus historiae naturalis: in quo regionis natura, incolarum ingenia & mores, morbi iisque medendi methodus, & medicina indigena accurate explicantu*r. Edinburgh: James Kniblo, Josua van Solingen & James Colmar, 1684.

———. *The Memoirs of Sir Robert Sibbald (1641-1722)*. Edited by Francis Hett Paget. London: Oxford University Press, 1932.

———. *Tractatus varii ad Scotiæ antiquæ & modernæ historiam facientes: in unum collecti, & jam primum editi*... Edinburgh: Andrew Simpson, 1711.

———. *Vindiciae Scotiae Illustratae, sive Prodromi naturalis historiae scotiae, contra prodromomastiges, sub larvâ libelli de legibus historiae naturalis, latentes ...* Edinburgh: Andrew Symson, 1710.

Tyson, Edward. *Orang-outang, sive, Homo sylvestris, or, The anatomy of a pygmie compared with that of a monkey, an ape, and a man to which is added, A philological essay concerning the pygmies, the cynocephali, the satyrs and sphinges of the ancients : wherein it will appear that they are all either apes or monkeys, and not men, as formerly pretended*. London: T. Bennett and D. Brown, 1699.

Valentini, Michael Bernhard. *Museum museorum, oder, Vollständige Schau Bühne aller Materialien und Specereyen : nebst deren natürlichen Beschreibung, Election, Nutzen und Gebrauch, aus andern Material-Kunst-und Naturalien-Kammern, oost-und-west-indischen Reiss-Beschreibungen: wie auch selbst-eigenen Erfahrung, zum Vorschub der studirenden Jugend, Materialisten u.s.w. also verfasset, und mit etlich hundert sauberen Kupfferstücken unter Augen geleget*. Frankfurt: Johann David Zunner, 1704.

Vallés, Francisco. *De iis, quae scripta sunt physice in libris sacris, siue De sacra philosophia, liber singulari*s. Turin: Nicolai Beuilaquae, 1587.

Walker, John. *Essays on Natural History and Rural Economy*. Edinburgh: Printed at the University Press, 1808.

———. *The Rev. Dr. John Walker' s Report on the Hebrides of 1764 and 1771*. Edited by Margaret M. MacKay. Edinburgh: John Donald, 1980.

Walkinshaw, James. *A Letter from Dr. James Walkinshaw to Sir Robert Sibbald*. London: Printed in the year, 1709.

Wallace, James. *An account of the Islands of Orkney*. London: Jacob Tonson, 1700.

Wallace, James. *A description of the Isles of Orkney; by Master James Wallace, late minister of Kirkwall, published after his death by his son; to which is added An essay concerning the Thule of the ancients*. Edinburgh: John Reid, 1693.

Watson, Thomas. *Autarkeia, or, The Art of Divine Contentment*. London: Printed by T.M. for Ralph Smith, 1654.

[William Cockburn]. *A Letter from Sir R- S-, to Dr. Archibald Pitcairn*. Edinburgh, 1709.

Wodrow, Robert. *Analecta: Or Materials for a History of Remarkable Providences Mostly Relating to Scotch Ministers and Christians*. Glasgow: Maitland club, 1842.

———. *Early Letters of Robert Wodrow, 1698-1709*. Edited by L. W. Sharp. Edinburgh: Edinburgh University Press, 1937.

———. *The Correspondence of the Rev. Robert Wodrow*. Edited by Thomas McCrie. Vol. 1. Edinburgh: The Wodrow Society, 1842.

———. *The Life of James Wodrow*. Edinburgh: William Blackwood, 1828.

Woodward, John. *Brief instructions for making observations in all parts of the world as also, for collecting, preserving, and sending over natural things : being an attempt to settle an universal correspondence for the advancement of knowledg both natural and civil / drawn up at the request of a person of honour and presented to the Royal Society*. London: Richard Wilkin, 1696.

Worm, Ole. *Museum Wormianum, seu, Historia rerum rariorum : tam naturalium, quam artificialium, tam domesticarum, quam exoticarum, quae Hafniae Danorum in aedibus authoris servantur*. Leiden: Elsevier, 1655.

Printed Secondary Sources

Ahnert, Thomas, and Martha McGill. "Scotland and the European Republic of Letters around 1700." In *Scottish Philosophy in the Seventeenth Century*, edited by Alexander Broadie, 73-93. Oxford: Oxford University Press, 2020.

Allan, David. *Philosophy and Politics in Later Stuart Scotland: Neo-Stoicism, Culture, and Ideology in an Age of Crisis, 1540-1690*. East Linton, Scotland: Tuckwell Press, 2000.

———. “Reconciliation and Retirement in the Restoration Scottish Church: The Neo-Stoicism of Robert Leighton.” *The Journal of Ecclesiastical History* 50, no. 2 (1999): 251-78.

Allen, David Elliston. *The Naturalist in Britain: A Social History*. London: A. Lane, 1976.

Anstey, Peter R. “The Creation of the English Hippocrates.” *Medical History* 55, no. 4 (2011): 457-78.

Appadurai, Arjan. “Introduction: Commodities and the Politics of Value.” In *The Social Life of Things*, edited by Arjan Appadurai, 3-63. Cambridge: Cambridge Univ. Press, 1986.

Barbour, Reid. *English Epicures and Stoics: Ancient Legacies in Early Stuart Culture. Massachusetts Studies in Early Modern Culture*. Amherst: University of Massachusetts Press, 1998.

Barker, Peter. “Stoic Contributions to Early Modern Science.” In *Atoms, Pneuma, and Tranquillity*, edited by Margaret J. Osler, 135-54. Cambridge: Cambridge University Press, 1991.

Barker, Peter, and Bernard R. Goldstein. “Is Seventeenth Century Physics Indebted to the Stoics?.” *Centaurus* 27, no. 2 (1984): 148-64.

Barnett, Lydia. *After the Flood: Imagining the Global Environment in Early Modern Europe.* Baltimore: Johns Hopkins University Press, 2019.

Belk, Russell W. *Collecting in a Consumer Society*. London: Routledge, 1995.

Bera, M. A. “‘Remarques upon the French Language’ by John Trotter, Gentleman.” *The Modern Language Review* 45, no. 4 (1950): 518.

Betteridge, Robert L. *The Library of James Sutherland: As Purchased by the Faculty of Advocates, Edinburgh, in 1705 and 1707*. Edinburgh: Merchiston Publishing, 2013.

Biagioli, Mario. *Galileo, Courtier: The Practice of Science in the Culture of Absolutism*. Chicago: University of Chicago Press, 1993.

Blair, Ann. *The Theater of Nature: Jean Bodin and Renaissance Science.* Princeton: Princeton University Press, 1997.

Booth, Emily. *“A Subtle and Mysterious Machine:” The Medical World of Walter Charleton (1619-1707)*. Dordrecht: Springer, 2005.

Bouwsma, William J. “The Two Faces of Humanism: Stoicism and Augustinianism in Renaissance Thought.” *In A Usable Past: Essays in European Cultural History*, 19-73. Berkeley: University of California Press, 1990.

Brenk, Frederick E. “Sheer Doggedness or Love of Neighbor? Motives for Self-Sufficiency in the Cynics and Others.” *Illinois Classical Studies* 27/28 (2002): 77-96.

Broadie, Alexander. “James Dundas on Seneca, Descartes and the Fall.” In *Neo-Latin Literature and Literary Culture in Early Modern Scotland*, edited by Steven J. Reid and David McOmish, 247-63. Leiden: Brill Academic Publishers, 2016.

———, ed. *Scottish Philosophy in the Seventeenth Century*. Oxford: Oxford University Press, 2020.

Brockliss, L.W.B. “Medical Teaching at the University of Paris, 1600-1720.” *Annals of Science* 35, no. 3 (1978): 221-51.

Burke, John, and Bernard Burke. *A Genealogical and Heraldic History of the Extinct and Dormant Baronetcies of England, Ireland and Scotland*. London: J. R. Smith, 1844.

Burnett, Linda Andersson. “Collecting Humanity in the Age of Enlightenment: The Hudson’s Bay Company and Edinburgh University’s Natural History Museum.” *Global Intellectual History* 8, no. 4 (2023): 387-408.

Bycroft, Michael. “Boethius de Boodt and the Emergence of the Oriental/Occidental Distinction in European Mineralogy.” In *Gems in the Early Modern World: Materials, Knowledge and Global Trade, 1450-1800*, edited by Michael Bycroft and Sven Dupré, 149-72. Basingstoke: Palgrave Macmillan, 2019.

Campbell, John Lorne, and Derick S. Thomson. *Edward Lhuyd in the Scottish Highlands, 1699-1700*. Oxford: Clarendon Press, 1963.

Cattaneo, Marcello. “Between Antiquarianism and Satire: Tertullian’s De Pallio in the Age of Confessions, c. 1590–1630.*” Erudition and the Republic of Letters* 5, no. 2 (2020): 117-62.

Clarke, T. E. S., Helen Charlotte Foxcroft, and Charles Harding Firth. *A Life of Gilbert Burnet, Bishop of Salisbury.* Cambridge: The University Press, 1907.

Clarke, Tristam. “Charteris, Laurence (c. 1625–1700), Church of Scotland Minister.” In *Oxford Dictionary of National Biography*, 2004.

Classen, Constance. “Museum Manners: The Sensory Life of the Early Museum.” *Journal of Social History* 40, no. 4 (2007): 895-914.

Clay, Diskin. “Columbus’ Senecan Prophecy.” *American Journal of Philology* 113, no. 4 (1992): 617-20.

Clive, John, and Bernard Bailyn. “England’s Cultural Provinces: Scotland and America.” *The William and Mary Quarterly* 11, no. 2 (1954): 200-213.

Cook, Harold J. *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age*. New Haven: Yale University Press, 2007.

———. “Physick and Natural History in Seventeenth-Century England.” In *Revolution and Continuity: Essays in the History and Philosophy of Early Modern Science*, edited by Peter Barker and Roger Ariew, 63-80. Washington, D.C: The Catholic University of America Press, 1991.

Cooper, Alix. *Inventing the Indigenous: Local Knowledge and Natural History in Early Modern Europe*. Cambridge: Cambridge University Press, 2007.

Coppola, Al. *The Theater of Experiment: Staging Natural Philosophy in Eighteenth-Century Britain*. Oxford: Oxford University Press, 2016.

Cowan, John Macqueen. "The History of the Royal Botanic Garden, Edinburgh." *Notes from the Royal Botanic Garden*, Edinburgh 41 (1933): 1-62.

Cowen, David L. "The Edinburgh Pharmacopoeia." *Medical History* 1, no. 2 (April 1957): 123-39.

Craig, William Stuart. *History of the Royal College of Physicians of Edinburgh*. Oxford: Blackwell Scientific Publications, 1976.

Creswell, Clarendon Hyde. *The Royal College of Surgeons of Edinburgh: Historical Notes from 1505 to 1905*. Edinburgh: Oliver and Boyd, 1926.

Cullen, Karen J. *Famine in Scotland - the "Ill Years" of the 1690s*. Edinburgh: Edinburgh University Press, 2010.

Cunningham, Andrew. "Medicine to Calm the Mind - Boerhaave's Medical System, and Why It Was Adopted in Edinburgh." In *The Medical Enlightenment of the Eighteenth Century*, edited by Andrew Cunningham and R. K. French, 40-66. Cambridge: Cambridge University Press, 1990.

———. "Sir Robert Sibbald and Medical Education, Edinburgh 1706." *Clio Medica* 13 (1978): 135-61.

———. "Sydenham versus Newton: The Edinburgh Fever Dispute of the 1690s between Andrew Brown and Archibald Pitcairne." In T*heories of Fever from Antiquity to the Enlightenment*, edited by W. F. Bynum and V. Nutton, 71-98. London: Wellcome Institute for the History of Medicine, 1981.

———. "The Bartholins, the Platters and Laurentius Gryllus: The Peregrinatio Medica in the Sixteenth and Seventeenth Centuries." In *Centres of Medical Excellence? Medical Travel and Education in Europe, 1500-1789*, edited by Ole Peter Grell, Andrew Cunningham, and Jon Arrizabalaga, 3-16. London: Routledge, 2010.

Curry, Helen Anne, Nicholas Jardine, James Andrew Secord, and Emma C. Spary, eds. *Worlds of Natural History*. Cambridge: Cambridge University Press, 2018.

Daston, Lorraine. "Baconian Facts, Academic Civility, and the Prehistory of Objectivity." In *Rethinking Objectivity*, edited by Allan Megill, 37-63. Durham: Duke University Press Books, 1994.

Daston, Lorraine, and Katharine Park. *Wonders and the Order of Nature: 1150–1750.* Cambridge, MA: MIT Press, 1998.

Debus, Allen G. *Chemistry and Medical Debate: Van Helmont to Boerhaave.* Canton, MA: Science History, 2001.

Delbourgo, James. "Collecting Hans Sloane." In *From Books to Bezoars: Sir Hans Sloane and His Collections*, edited by Alison Walker, Arthur MacGregor, and Michael Hunter, 9-23. London: British Library, 2012.

———. *Collecting the World: Hans Sloane and the Origins of the British Museum.* Cambridge, MA: Harvard University Press, 2017.

Dingwall, Helen M. *"A Famous and Flourishing Society": The History of the Royal College of Surgeons of Edinburgh, 1505–2005*. Edinburgh: University Press, 2005.

———. "Mackail, Matthew (Fl. 1657–1696), Apothecary and Physician." In *Oxford Dictionary of National Biography*, 2004.

Donaldson, I.M.L. "Ex Libris: The Sale Catalogue of Sir Robert Sibbald's Last Library." *Journal of the Royal College of Physicians of Edinburgh* 40, no. 1 (2010): 86-87.

Du Toit, Alexander. "Balfour, Sir James, of Denmiln and Kinnaird, First Baronet (1600–1657), Antiquary and Herald." In *Oxford Dictionary of National Biography*, 2010.

Duncan, Douglas. "Scholarship and Politeness in the Early Eighteenth Century." In *The History of Scottish Literature*, Vol. 2, 1660–1800, edited by Andrew Hook. Aberdeen: Aberdeen University Press, 1987.

Durkan, John. "The Early History of Glasgow University Library: 1475-1710." *The Bibliotheck* 8 (1977): 102-26.

Eddy, Matthew. *The Language of Mineralogy: John Walker, Chemistry and the Edinburgh Medical School, 1750–1800.* Farnham, England: Ashgate Pub. Co, 2008.Eizat, Edward. *Apollo Mathematicus, or, The Art of Curing Diseases by the Mathematicks According to the Principles of Dr. Pitcairn*. London, 1695.

Emerson, Roger L. *Academic Patronage in the Scottish Enlightenment: Glasgow, Edinburgh and St Andrews Universities.* Edinburgh: Edinburgh University Press, 2008.

———. "Did the Scottish Enlightenment Emerge in an English Cultural Province?" *Lumen*: *Selected Proceedings from the Canadian Society for Eighteenth-Century Studies* 14 (1995): 1-24.

———. "Science and the Origins and Concerns of the Scottish Enlightenment," *History of Science; Cambridge* 26, no. 4 (1988): 333-66.

———. "Sir Robert Sibbald, Kt, The Royal Society of Scotland and the Origins of the Scottish Enlightenment." *Annals of Science* 45, no. 1 (1988): 41-72.

———. "The World in Which the Scottish Enlightenment Took Shape." In *Scottish Philosophy in the Eighteenth Century, Volume I*, edited by Aaron Garrett and James A. Harris. Oxford: Oxford University Press, 2015.

Findlen, Paula. "Francis Bacon and the Reform of Natural History in the Seventeenth Century." In *History and the Disciplines - The Reclassification of Knowledge in Early Modern Europe*, edited by Donald R. Kelley. Rochester: The University of Rochester Press, 1997.

———. *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy*. Berkeley: University of California Press, 1994.

———. “The Museum: Its Classical Etymology and Renaissance Genealogy.” *Journal of the History of Collections* 1, no. 1 (January 1, 1989): 59-78.

———. “The Specimen and the Image.” *Huntington Library Quarterly* 78, no. 2 (2015): 217-61.

Finlayson, C. P., and S. M. Simpson. “The History of the Library 1580–1710.” In *Edinburgh University Library, 1580-1980- : A Collection of Historical Essays*, edited by Jean R. Guild and Alexander Law, 43–54. Edinburgh: The Edinburgh University Library, 1982.

Fletcher, Harold R, and William H Brown. *The Royal Botanic Garden Edinburgh 1670–1970*. Edinburgh: Her Majesty’s Stationery Office, 1970.

Garber, Daniel. “Fact, Fiction and Error in Bacon and the Royal Society.” *Rivista Di Storia Della Filosofia* 71, no. 4 (2016): 563-78.

Gellera, Giovanni. “Reformed Scholastic Philosophy in the Seventeenth-Century Scottish Universities.” In *Scottish Philosophy in the Seventeenth Century*, edited by Alexander Broadie, 94-110. Oxford University Press, 2020.

Ginzburg, Carlo. “Morelli, Freud and Sherlock Holmes: Clues and Scientific Method.” *History Workshop Journal* 9 (1980): 5-36.

Goldgar, Anne. *Impolite Learning: Conduct and Community in the Republic of Letters, 1680–1750*. New Haven: Yale University Press, 1995.

Goode, George Browne. *The Principles of Museum Administration*. York: Coultas & Volans, 1895.

Grafton, Anthony. *New Worlds, Ancient Texts: The Power of Tradition and the Shock of Discovery*. Cambridge: Harvard University Press, 1992.

Grant, Alexander. *The Story of the University of Edinburgh During Its First Three Hundred Years*. Vol. 1. London: Longmans, Green, and Company, 1884.

Green, Roger P.H. “The Extent of Senecan Influence in the Dramas of George Buchanan.” *Humanistica Lovaniensia* 63 (2014): 107-36.

Guerrini, Anita. “‘A Club of Little Villains’: Rhetoric, Professional Identity and Medical Pamphlet Wars.” In *Literature & Medicine during the Eighteenth Century*, edited by Marie Mulvey Roberts and Roy Porter, 226-44. London: Routledge, 1993.

———. *Obesity and Depression in the Enlightenment: The Life and Times of George Cheyne*. Norman: University of Oklahoma Press, 2000.

———. “Pitcairne, Archibald (1652–1713), Physician.” In *Oxford Dictionary of National Biography*, 2004.

———. *The Courtiers’ Anatomists: Animals and Humans in Louis XIV’s Paris*. Chicago: University of Chicago Press, 2015.

———. “The Tory Newtonians: Gregory, Pitcairne, and Their Circle.” *Journal of British Studies* 25, no. 3 (1986): 288-311.

Haldane, A. R. B. *Three Centuries of Scottish Posts: An Historical Survey to 1836.* Edinburgh: Edinburgh University Press, 1971.

Harris, Steven. "Networks of Travel, Correspondence, and Exchange." In *The Cambridge History of Science: Volume 3: Early Modern Science*, edited by Katharine Park and Lorraine Daston, 3:341-62. Cambridge: Cambridge University Press, 2006.

Hartig, Falk. "Panda Diplomacy: The Cutest Part of China's Public Diplomacy." *The Hague Journal of Diplomacy* 8 (2013): 49-78.

Hayton, W.D. "Nicolson, William (1655–1727), Church of Ireland Bishop of Derry and Antiquary." In *Oxford Dictionary of National Biography*, 2008.

Heijnsbergen, Theo van. "The Renaissance Uses of a Medieval Seneca: Murder, Stoicism, and Gender in the Marginalia of Glasgow Hunter 297." *Studies in Scottish Literature* 39, no. 1 (2013): 55-81.

Hellyer, Marcus. "The Pocket Museum: Edward Lhwyd's Lithophylacium*." Archives of Natural History* 23, no. 1 (1996): 43-60.

Henry, John. "Sir Kenelm Digby, Recusant Philosopher." *In Insiders and Outsiders in Seventeenth-Century Philosophy*, 43-75. New York: Routledge, 2010.

———. "The Reception of Cartesianism." In The *Oxford Handbook of British Philosophy in the Seventeenth Century*, edited by Peter R. Anstey, 116-43. Oxford: Oxford University Press, 2013.

Heumann, Ina, Anne Greenwood MacKinney, and Rainer Buschmann. "Introduction: The Issue of Duplicates." *The British Journal for the History of Science* 55, no. 3 (2022): 257-78.

Hine, Harry M. "Originality and Independence in Seneca's Naturales Quaestiones, Book 2." In *Seneca e Le Scienze Naturali*, edited by Marco Beretta, Francesco Citti, and Lucia Pasetti, 31-47. Florence: L.S. Olschki, 2012.

Hirai, Hiro. *Medical Humanism and Natural Philosophy: Renaissance Debates on Matter, Life and the Sou*l. Leiden: Brill, 2011.

———. "Seneca's Naturales Quaestiones in Justus Lipsius' Physiologia Stoicorum: The World-Soul, Providence and Eschatology." *In Seneca e Le Scienze Naturali*, edited by Marco Beretta, Francesco Citti, and Lucia Pasetti, 119-41. Florence: L.S. Olschki, 2012.

Hirai, Hiro, and Jan Papy, eds. *Justus Lipsius and Natural Philosophy*. Brussels: Royal Academy of Belgium, 2011.

Hooper-Greenhill, Eilean. *Museums and the Shaping of Knowledge*. London: Routledge, 1992.

Hotson, Howard. *The Reformation of Common Learning: Post-Ramist Method and the Reception of the New Philosophy*, 1618 - 1670. Oxford: Oxford University Press, 2020.

Howie, W. B. "Sir Archibald Stevenson, His Ancestry, and the Riot in the College of Physicians at Edinburgh." *Medical History* 11, no. 3 (1967): 269-84.

Hunter, Michael. "Archibald Pitcairne: Heterodoxy and Its Milieu in Late Seventeenth- and Early Eighteenth-Century Edinburgh." In *Early Modern Universities*, edited by Anja-Silvia Goeing, Glyn Parry, and Mordechai Feingold, 283-96. Brill, 2021.

———. *The Occult Laboratory: Magic, Science, and Second Sight in Late Seventeenth-Century Scotland*. Woodbridge: Boydell Press, 2001.

Idiens, Dale. "Eskimos in Scotland: C. 1682–1924." *In Indians and Europe: An Interdisciplinary Collection of Essays*, edited by Christian F. Feest, 161-74. Lincoln: University of Nebraska Press, 1999.

Innes, Sìm. "Scottish Enlightenment Inquiry in Gaelic Poetry: 'Air Fàsachadh Na Gàidhealtachd Albannaich.'" In *The International Companion to Scottish Literature of the Long Eighteenth Century*, edited by Leith Davis and Janet Sorensen. Glasgow: Scottish Literature International, 2021.

Jalobeanu, Dana. "Francis Bacon and Justus Lipsius: Natural Philosophy, Natural Theology and the Stoic Discipline of the Mind." In *Justus Lipsius and Natural Philosophy*, edited by Hiro Hirai and Jan Papy, 107-21. Brussels: Royal Academy of Belgium, 2011.

Jardine, Boris, Emma Kowal, and Jenny Bangham. "How Collections End: Objects, Meaning and Loss in Laboratories and Museums." *BJHS Themes* 4 (2019): 1-27.

Jardine, Nicholas, James A. Secord, and E. C. Spary, eds. *Cultures of Natural History*. Cambridge: Cambridge University Press, 1996.

Jarvis, Charles E. "'Take with You a Small Spudd or Trowell': James Petiver's Directions for Collecting Natural Curiosities." In *Naturalists in the Field*, edited by Arthur MacGregor, 212-39. Leiden: Brill, 2018.

Johnson, James W. *A Profane Wit: The Life of John Wilmot, Earl of Rochester*. Boydell & Brewer, 2004.

Johnston, Arthur. *Musa Latina Aberdonensis*. Edited by William Duguid Geddes. Vol. II. Aberdeen: New Spalding Club, 1895.

Joly, Bernard. "Stoic Influences on Sixteenth and Seventeenth-Century Theories of Tides." *Revue d'histoire des sciences* 61, no. 2 (2008): 287-311.

Jonsson, Fredrik Albritton. *Enlightenment's Frontier: The Scottish Highlands and the Origins of Environmentalism*. New Haven: Yale University Press, 2013.

Kahn, Didier. "The First Private and Public Courses of Chymistry in Paris (and Italy) from Jean Beguin to William Davisson." *Ambix* 68, no. 2-3 (2021): 247-72.

Keller, Vera. "Deprogramming Baconianism: The Meaning of Desiderata in the Eighteenth Century." *Notes and Records: The Royal Society Journal of the History of Science* 72, no. 2 (2018): 119-37.

———. *The Interlopers*. Baltimore: Johns Hopkins University Press, 2023.

Korenjak, Martin. *Latin Scientific Literature, 1450-1850*. Oxford: Oxford University Press, 2023.

Koslofsky, Craig. "Superficial Blackness?: Johann Nicolas Pechlin's De Habitu et Colore Aethiopum Qui Vulgo Nigritae (1677)." *Journal for Early Modern Cultural Studies* 18, no. 1 (2018): 140-58.

Lemmings, David. "Burnet, Sir Thomas (1694–1753), Judge." In *Oxford Dictionary of National Biography*, 2004.

Levine, Joseph M. *Dr. Woodward's Shield: History, Science, and Satire in Augustan England.* Berkeley: University of California Press, 1977.

Levitin, Dmitri. *Ancient Wisdom in the Age of the New Science: Histories of Philosophy in England, c. 1640–1700*. Cambridge: Cambridge University Press, 2015.

———. "Newton on the Rules of Philosophizing and Hypotheses: New Evidence, New Conclusions." *Isis* 112, no. 2 (2021): 242-65.

———. *The Kingdom of Darkness: Bayle, Newton, and the Emancipation of the European Mind from Philosophy.* Cambridge: Cambridge University Press, 2022.

Liciu, Alexandru. "Robert Hooke's Science of 'Petrifaction', the Trattato Del Legno Fossile, and the Republic of Letters." *Erudition and the Republic of Letters* 8, no. 3 (August 21, 2023): 279-306.

Liston, Jeff J. "Pulling Teeth : 2 - Hunter's Tusk, Wodrow's Tooth and the Bite of the Lepus." *Geological Curator* 9, no. 8 (2012): 421-28.

Livingstone, David N. *Putting Science in Its Place: Geographies of Scientific Knowledge*. Chicago: University of Chicago Press, 2003.

MacGregor, Arthur, ed. *Tradescant's Rarities: Essays on the Foundation of the Ashmolenan Museum 1683 with a Catalogue of the Surviving Early Collections*. Oxford: Clarendon Press, 1983.

Maclean, Ian. "The Reception of Hippocrates by Physicians at the End of the Seventeenth Century: A Comparative Study." In *The Worlds of Knowledge and the Classical Tradition in the Early Modern Age: Comparative Approaches*, edited by Dmitri Levitin and Ian Maclean. Boston, 2021.

Mandelbrote, Scott. "The Uses of Natural Theology in Seventeenth-Century England." *Science in Context* 20, no. 3 (2007): 451-80.

Mann, Alastair J. "A Spirit of Literature: Melville, Baillie, Wodrow, and a Cast of Thousands: The Clergy in Scotland's Long Renaissance." *Renaissance Studies* 18, no. 1 (2004): 90-108.

———. "Book Commerce, Litigation and the Art of Monopoly: The Case of Agnes Campbell, Royal Printer, 1676–1712." *Scottish Economic and Social History* 18, no. 2 (1998): 132-56.

———. *The Scottish Book Trade, 1500–1720 Print Commerce and Print Control in Early Modern Scotland : An Historiographical Survey of the Early Modern Book in Scotland.* East Linton: Tuckwell Press, 2000.

Margócsy, Dániel. *Commercial Visions: Science, Trade, and Visual Culture in the Dutch Golden Age*. Chicago: The University of Chicago Press, 2014.

Marples, Alice. "Scientific Administration in the Early Eighteenth Century: Reinterpreting the Royal Society's Repository." *Historical Research* 92, no. 255 (2019): 183-204.

Martinovský, O. J., and B. Maraldo. "Studia Taxonomica Ad Taxa Sectionis Stipa in Regione Mediterranea Atque Submediterranea Occurrentia." *Preslia* 52 (1980): 13-34.

Mauck, Aaron. "'By Merit Raised to That Bad Eminence': Christopher Merrett, Artisanal Knowledge, and Professional Reform in Restoration London." *Medical History* 56, no. 1 (2012): 26-47.

Mazzolini, Renato G. "Skin Color and the Origin of Physical Anthropology (1640-1850)." In *Reproduction, Race, and Gender in Philosophy and the Early Life Sciences*, edited by Susanne Lettow, 131-61. New York: SUNY Press, 2014.

McCrea, Adriana. *Constant Minds: Political Virtue and the Lipsian Paradigm in England, 1584–1650.* Toronto: University of Toronto Press, 1997.

McGill, Martha, and Alasdair Raffe. "The Uses of Providence in Early Modern Scotland." In *The Supernatural in Early Modern Scotland*, edited by Julian Goodare, 160-77. Manchester University Press, 2020.

McLean, Ralph. "The Decline of Latin in the Scottish Universities." In *Neo-Latin Literature and Literary Culture in Early Modern Scotland*, edited by Steven J. Reid and David McOmish, 264-84. Leiden: Brill, 2016.

McOmish, David. "A Community of Scholarship: Latin Literature and Scientific Discourse in Early Modern Scotland." In *Neo-Latin Literature and Literary Culture in Early Modern Scotland*, edited by Steven J. Reid and David McOmish, 40-73. Leiden: Brill, 2016.

———. "The Scientific Revolution in Scotland Revisited: New Sciences in Edinburgh." In *History of Universities*, vol. XXX1 2:153-72. Oxford University Press, 2018.

Mendyk, Stanley A. "Speculum Britanniae": *Regional Study, Antiquarianism, and Science in Britain to 1700*. Toronto: University of Toronto Press, 1989.

Mijers, Esther. *"News from the Republick of Letters:" Scottish Students, Charles Mackie and the United Provinces*, 1650-1750. Leiden: Brill, 2012.

———. "Scotland, the Dutch Republic and the Union: Commerce and Cosmopolitanism." In *Jacobitism, Enlightenment and Empire, 1680-1820*, edited by Douglas Hamilton and Allan I. Macinnes, 93-108. London: Routledge, 2015.

Montgomery, Alan. *Classical Caledonia: Roman History and Myth in Eighteenth-Century Scotland*. Edinburgh: Edinburgh University Press, 2022.

Murray, David. *Museums, Their History and Their Use*. 1996 Reprint. London: Routledge/Thoemmes Press, 1904.

Nanni, Fabio, and Daniele Pellacani. "Per Una Rassegna Sulla Fortuna Delle Naturales Quaestiones." In *Seneca e Le Scienze Naturali*, edited by Marco Beretta, Francesco Citti, and Lucia Pasetti, 161-252. Florence: L.S. Olschki, 2012.

Nelson, E. Charles. *Sea Beans and Nickar Nuts: A Handbook of Exotic Seeds and Fruits Stranded on Beaches in North-Western Europe*. London: Botanical Society of the British Isles, 2000.

Oestreich, Gerhard. *Neostoicism and the Early Modern State*. Edited by Brigitta Oestreich and H. G. Koenigsberger. Translated by David McLintock. Cambridge: Cambridge University Press, 1982.

Ogilvie, Brian W. "Natural History, Ethics, and Physico-Theology." In *Historia: Empiricism and Erudition in Early Modern Europe*, edited by Gianna Pomata and Nancy G. Siraisi. Cambridge, MA: MIT Press, 2005.

———. *The Science of Describing: Natural History in Renaissance Europe*. Chicago: University of Chicago Press, 2006.

Ouston, Hugh. "York in Edinburgh: James VII and the Patronage of Learning in Scotland, 1679–1688." In *New Perspectives on the Politics and Culture of Early Modern Scotland*, edited by John Dwyer, Roger Mason, and Alexander Murdoch, 133-55. Edinburgh: Donald, 1982.

Ovenden, Richard. "Sir Andrew Balfour." In *Pre-Nineteenth-Century British Book Collectors and Bibliographers*, edited by William Baker and Kenneth Womack, 12-20. Detroit: Gale, 1998.

Payne, J.F., and Patrick Wallis. "Bennet, Christopher (1617–1655)." In The *Oxford Dictionary of National Biography*, 2004.

Pennuto, Concetta. "Lay Readings of the Bible in Early Modern Europe." In *Francisco Vallés' De Sacra Philosophia: A Medical Reading of the Bible*, edited by Erminia Ardissino and Élise Boillet, 136-59. Leiden: Brill, 2019.

Phillipson, Nicholas. "The Making of an Enlightened University." In *The University of Edinburgh – An Illustrated History*, by Robert D. Anderson, Michael Lynch, and Nicholas Phillipson. Edinburgh: Edinburgh University Press, 2003.

Pomian, Krzysztof. *Collectors and Curiosities: Paris and Venice, 1500–1800*. Translated by Elizabeth Wiles-Portier. Cambridge: Polity, 1990.

Poole, William. *The World Makers: Scientists of the Restoration and the Search for the Origins of the Earth*. Oxford: Peter Lang, 2010.

Powers, John C. *Inventing Chemistry: Herman Boerhaave and the Reform of the Chemical Arts.* Chicago: University of Chicago Press, 2012.

Raffe, Alasdair. "Archibald Pitcairne and Scottish Heterodoxy, c. 1688–1713." *The Historical Journal* 60, no. 3 (2017): 633-57.

———. “Intellectual Change before the Enlightenment: Scotland, the Netherlands and the Reception of Cartesian Thought, 1650–1700.” *The Scottish Historical Review* 94, no. 1 (2015): 24-47.

———. *Scotland in Revolution, 1685–1690.* Edinburgh: Edinburgh University Press, 2018.

———. *The Culture of Controversy: Religious Arguments in Scotland, 1660–1714*. Woodbridge: Boydell Press, 2012.

———. “Wodrow’s News: Correspondence and Politics in Early 18th-Century Scotland.” *Parliamentary History* 41, no. 1 (2022): 135-49.

Ragland, Evan R. “Experimental Clinical Medicine and Drug Action in Mid-Seventeenth-Century Leiden.” *Bulletin of the History of Medicine* 91, no. 2 (2017): 331-61.

———. *Making Physicians - Tradition, Teaching, and Trials at Leiden University 1575–1639.* Vol. 1. Leiden Boston: Brill, 2022.

———. “Mechanism, the Senses, and Reason: Franciscus Sylvius and Leiden Debates Over Anatomical Knowledge After Harvey and Descartes.” In *Early Modern Medicine and Natural Philosophy*, edited by Peter Distelzweig, Benjamin Goldberg, and Evan R. Ragland, 14:173-205. History, Philosophy and Theory of the Life Sciences. Dordrecht: Springer Netherlands, 2016.

Raye, Lee. “Erroll [Née Drummond; Married Name Hay], Anne, Countess of Erroll (1656–1719), Jacobite and Naturalist.” In *Oxford Dictionary of National Biography*, 2019.

———. “Robert Sibbald’s ‘Scotia Illustrata’ (1684): A Faunal Baseline for Britain.” *Notes and Records: The Royal Society Journal of the History of Science* 72, no. 3 (2018): 383-405.

———. *The Atlas of Early Modern Wildlife*. Pelagic Publishing, 2023.

———. *The Wild Plants of Scotland and the Animals of Scotland by Robert Sibbald*. Lee Raye, 2020.

Reid, Steven J. “A Latin Renaissance in Reformation Scotland? Print Trends in Scottish Latin Literature, c. 1480–1700.” *The Scottish Historical Review* 95, no. 240 (2016): 1-29.

———. “On the Edge of Reason: The Scottish Universities between Reformation and Enlightenment, 1560–1660.” In *Scottish Philosophy in the Seventeenth Century*, edited by Alexander Broadie. Oxford: Oxford University Press, 2020.

Rhoda Rappaport. *When Geologists Were Historians, 1665–1750*. Cornell University Press, 1997.

Rigg, J. M., and F. Lloyd Campbell. “Dunlop, Alexander (1684–1747), Greek Scholar and University Teacher,” In *Oxford Dictionary of National Biography*, 2004.

Ritchie, Robert Peel. *The Early Days of the Royall Colledge of Phisitians*. Edinburgh: George P. Johnston, 1899.

Roberts, Brynley F. *Edward Lhwyd: c.1660–1709, Naturalist, Antiquary, Philologist*. Cardiff: University of Wales Press, 2022.

Robertson, Forbes W. "James Sutherland's 'Hortus Medicus Edinburgensis' (1683)." *Garden History* 29, no. 2 (2001): 121-51.

Roos, Anna Marie. "Fossilized Remains: The Martin Lister and Edward Lhuyd Ephemera." In *Archival Afterlives: Life, Death, and Knowledge-Making in Early Modern British Scientific and Medical Archives*, edited by Vera Keller, Anna Marie Roos, and Elizabeth Yale, 150-72. Leiden: Brill, 2018.

———. "'Only Meer Love to Learning': A Rediscovered Travel Diary of Naturalist and Collector James Petiver (c.1665–1718)." *Journal of the History of Collections* 29, no. 3 (2017): 381-94.

———. "Salient Theories in the Fossil Debate in the Early Royal Society: The Influence of Johann Van Helmont." In *Controversies*, edited by Marcelo Dascal and Victor D. Boantza, 11:151-70. Amsterdam: John Benjamins Publishing Company, 2011.

———. *Web of Nature: Martin Lister (1639-1712), the First Arachnologist*. Leiden: Brill, 2011.

Roos, Anna Marie, and Vera Keller, eds. *Collective Wisdom: Collecting in the Early Modern Academy*. Turnhout: Brepols Publishers, 2022.

Roos, Anna Marie, and Edwin D. Rose. "Lives and Afterlives of the Lithophylacii Britannici Ichnographia (1699), the First Illustrated Field Guide to English Fossils." *Nuncius* 33, no. 3 (2018): 505-36.

Shapin, Steven. "'A Scholar and a Gentleman': The Problematic Identity of the Scientific Practitioner in Early Modern England." *History of Science* 29, no. 3 (1991): 279-327.

———. *A Social History of Truth*. Chicago: The University of Chicago Press, 1994.

Shapin, Steven, and Simon Schaffer. *Leviathan and the Air-Pump Hobbes, Boyle, and the Experimental Life.* Princeton: Princeton University Press, 2011.

Shuttleton, David E. "'A Modest Examination': John Arbuthnot and the Scottish Newtonians." *Journal for Eighteenth-Century Studies* 18, no. 1 (1995): 47-62.

Simpson, Allen D. C. "Sir Robert Sibbald - The Founder of the College." In *Proceedings of the Royal College of Physicians of Edinburgh - Tercentenary Congress*, 59-91. Cambridge: Cambridge University Press, 1982.

Simpson, Murray C. T. "Nairn, James (1629–1678), Church of Scotland Minister and Book Collector." In *Oxford Dictionary of National Biography*, 2006.

———. *Scholarly Book Collecting in Restoration Scotland: The Library of the Revd James Nairn (1629–1678).* Leiden: Brill, 2020.

Sinclair, John. *The Statistical Account of Scotland: Drawn Up from the Communications of the Ministers of the Different Parishes*. Vol. 18. Edinburgh: William Creech, 1796.

Siraisi, Nancy G. "Historiae, Natural History, Roman Antiquity, and Some Roman Physicians." In *Historia: Empiricism and Erudition in Early Modern Europe*, edited by Gianna Pomata and Nancy G. Siraisi, 325-54. Cambridge: MIT Press, 2005.

Skinner, Andrew S. “Introduction.” In *The Origins and Nature of the Scottish Enlightenment*, edited by R.H. Campbell and Andrew S. Skinner. Edinburgh: Birlinn, 1982.

Smith, Pamela H., and Isabella Lores-Chavez. “Counterfeiting Materials, Imitating Nature.” In *The Matter of Mimesis: Studies of Mimesis and Materials in Nature, Art and Science*, edited by Marjolijn Bol and Emma C. Spary, 27-53. Leiden: Brill, 2023.

Starkey, A. M. “Robert Wodrow and The History of the Sufferings of the Church of Scotland.” *Church History* 43, no. 4 (1974): 488-98.

Starn, Randolph. “Historian’s Brief Guide to New Museum Studies.” *The American Historical Review* 110, no. 1 (2005): 68-98.Stewart, M. A. “The Stoic Legacy in the Early Scottish Enlightenment.” In *Atoms, Pneuma, and Tranquillity: Epicurean and Stoic Themes in European Thought*, edited by Margaret J. Osler, 273-96. Cambridge: Cambridge University Press, 1991.

Stigler, Stephen M. “Apollo Mathematicus: A Story of Resistance to Quantification in the Seventeenth Century.” *Proceedings of the American Philosophical Society* 136, no. 1 (1992): 93-126.

Swan, Claudia. “The Nature of Exotic Shells.” In *Conchophilia: Shells, Art, and Curiosity in Early Modern Europe*, edited by Marisa Anne Bass, Anne Goldgar, Hanneke Grootenboer, and Claudia Swan, 21-47. Princeton: Princeton University Press, 2021.

Swann, Marjorie. *Curiosities and Texts: The Culture of Collecting in Early Modern England*. Philadelphia: University of Pennsylvania Press, 2001.

Tansey, Violet, and D.E.C. Mekie. *The Museum of the Royal College of Surgeons of Edinburgh*. Edinburgh: The Royal College of Surgeons of Edinburgh, 1978.

Tarp, Lisbet. “Fertile Stones.” In *The Matter of Mimesis*, edited by Marjolijn Bol and E. C. Spary, 417-44. Leiden: Brill, 2023.

Thomsen, Elsebeth. “Niels Stensen - Steno, in the World of Collections and Museums.” *In The Revolution in Geology from the Renaissance to the Enlightenment*, edited by Gary D. Rosenberg, 75-89. Boulder, Colorado: The Geological Society of America, 2003.

Tonetti, Luca. “In Difesa Della ‘Medicina Indigena’: Sibbald, Baglivi e La Metodologia Ippocratico-Baconiana.” In *Oeconomia corporis. The Body's Normal and Pathological Constitution at the Intersection of Philosophy and Medicine*, edited by C. Beneduce and D. Vincenti, 69-79. Pisa: Edizioni ETS, 2018.

Trijp, Didi van. “Fresh Fish: Observation up Close in Late Seventeenth-Century England.” *Notes and Records: The Royal Society Journal of the History of Science* 75, no. 3 (2021): 311-332.

Van Schendel, A. F. E. “Manufacture of Vermilion in 17th-Century Amsterdam. The Pekstok Papers.” *Studies in Conservation* 17, no. 2 (1972): 70-82.

Verbeek, Theo. “Vorstius, Adolph (1597–1663).” In The *Cambridge Descartes Lexicon*, edited by Lawrence Nolan, 756-756. Cambridge: Cambridge University Press, 2015.

Williams, Kelsey Jackson. *The First Scottish Enlightenment.* Oxford: Oxford University Press, 2020.

Withers, Charles W. J. "'Both Useful and Ornamental': John Walker's Keepership of Edinburgh University's Natural History Museum, 1779–1803." *Journal of the History of Collections* 5, no. 1 (1993): 65-77.

———. "Geography, Science and National Identity in Early Modern Britain: The Case of Scotland and the Work of Sir Robert Sibbald (1641–1722)." *Annals of Science* 53, no. 1 (1996): 29-73.

———. "Sir Robert Sibbald (1641–1722)." In *Geographers' Biobibliographical Studies*, 17:12-21. London: Mansell, 1997.

———. "Reporting, Mapping, Trusting: Making Geographical Knowledge in the Late Seventeenth Century." *Isis* 90, no. 3 (1999): 497-521.

———. *Geography, Science, and National Identity: Scotland since 1520*. Cambridge: Cambridge University Press, 2001.

———. "Geography and the Scientific Revolution." In *Geography and Revolution*, edited by David N. Livingstone and Charles W. J. Withers, 75–105. University of Chicago Press, 2005.

———. "Sibbald, Sir Robert (1641–1722), Physician and Geographer." In *Oxford Dictionary of National Biography*, 2006.

Withers, Charles W. J., and Paul Wood, eds. *Science and Medicine in the Scottish Enlightenment*. East Linton: Tuckwell Press, 2002.

Wood, Paul. "The Scientific Revolution in Scotland." In *The Scientific Revolution in National Context*, edited by Mikulas Teich and Roy Porter, 263-87. Cambridge: Cambridge University Press, 1992.

———. "Science in the Scottish Enlightenment." In *The Cambridge Companion to the Scottish Enlightenment*, edited by Alexander Broadie, 94-116. Cambridge Companions to Philosophy. Cambridge: Cambridge University Press, 2003.

Yale, Elizabeth. *Sociable Knowledge: Natural History and the Nation in Early Modern Britain*. Philadelphia: University of Pennsylvania Press, 2016.

Yeo, Richard. *Notebooks, English Virtuosi, and Early Modern Science*. Chicago: University of Chicago Press, 2014.

Yeoman, Louise. "Wodrow, Robert (1679–1734), Ecclesiastical Historian." In *Oxford Dictionary of National Biography*, 2004.

Unpublished PhD Theses

Ashman, Lewis. "Reception of Isaac Newton in the Scottish Enlightenment: Causation, Gravitation, and the Transformation of Natural Philosophy." PhD Thesis, University of Edinburgh, 2023.

Balsiger, Barbara Jeanne. "The 'Kunst- Und Wunderkammern': A Catalogue Raisonné of Collecting in Germany, France and England, 1565–1750." PhD Thesis, University of Pittsburgh, 1970.

Giesemann North, Susan. "Finding Nature's Order: Stoicism, Humanism, and Rhetoric in Francis Bacon's New Philosophy." PhD Thesis, University of Tennessee, 2007.

Hedlin, Kimberly Susan. "The Book of Job in Early Modern England." PhD Thesis, University of California, 2018.

Huisman, T. "The Finger of God : Anatomical Practice in 17th Century Leiden." PhD Thesis, Leiden University, 2008.

Nunes, Lia. "The Anti-Biography of Gregorio Lopez: Deconstructing a Sixteenth-Century Vita." PhD Thesis, University of Groningen, 2020.

Shepherd, Christine M. "Philosophy and Science in the Arts Curriculum of the Scottish Universities in the 17th Century." PhD Thesis, University of Edinburgh, 1975.

Stott, Rosalie Mary. "Incorporation of Surgeons and Medical Education and Practice in Edinburgh, 1696–1755." PhD Thesis, The University of Edinburgh, 1984.

Online Sources

Capron, Loïc. "Correspondance Complète de Guy Patin et Autres Écrits," 2022. https://www.biusante.parisdescartes.fr/patin/.

Miert, Dirk van. "Scaliger's Abusive Language: A Glossary." The Warburg Institute. Accessed May 10, 2022. https://warburg.sas.ac.uk/research-projects/archived-research-projects/joseph-justus-scaliger-correspondence/scaligers-abusive-language.

National Records of Scotland. "ScotlandsPeople." Accessed January 6, 2022. https://www.scotlandspeople.gov.uk/.

The British Library. "English Short Title Catalogue," 2020. http://estc.bl.uk/.

The Gazetteer for Scotland. "The Gazetteer for Scotland." Accessed August 13, 2024. https://www.scottish-places.info/.

Winkler, René. "Auctarium Musaei Balfouriani." Robert Sibbald's Auctarium Musaei Balfouriani, 2024. https://auctarium.omeka.net/.

———. "Robert Wodrow's Eastwood Museum." 2023. tinyurl.com/wodrow.